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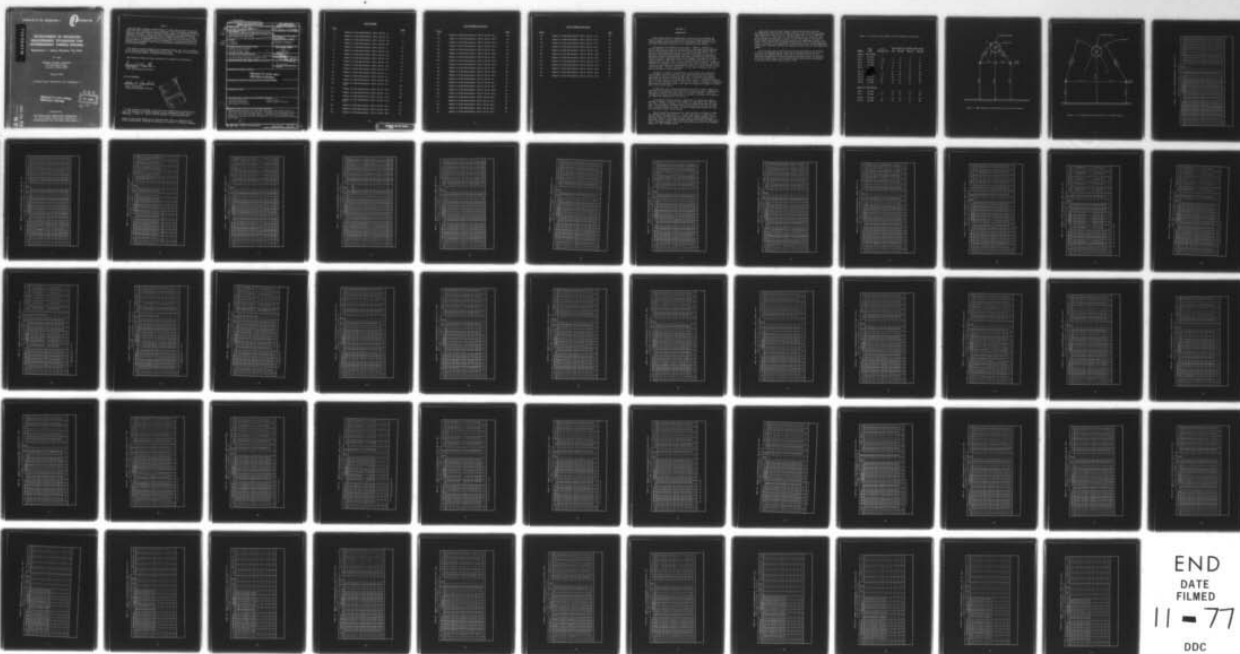
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# DEVELOPMENT OF EMISSIONS MEASUREMENT TECHNIQUES FOR AFTERBURNING TURBINE ENGINES

Supplement 1 - Engine Emissions Test Data

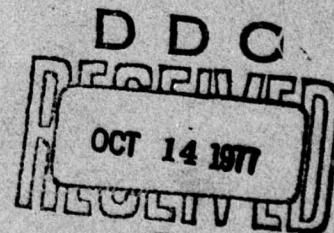
T.F. Lyon

GENERAL ELECTRIC COMPANY  
Aircraft Engine Group  
Cincinnati, Ohio 45215

October 1975

Technical Report AFAPL-TR-75-52, Supplement 1

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Prepared for

AIR FORCE AERO PROPULSION LABORATORY  
Air Force Wright Aeronautical Laboratories  
Wright-Patterson Air Force Base, Ohio 45433

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Leonard C. Angelo  
Fuels Branch  
Fuels and Lubrication Division

FOR THE COMMANDER

Arthur V. Churchill  
Chief, Fuels Branch  
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## SECTION 1.0

### INTRODUCTION

This volume contains a comprehensive tabulation of the afterburning engine emissions test data acquired under Contract F33615-73-C-2047. The overall program involved the definition, development, and demonstration of emissions measurement techniques for afterburning turbine engines.

The program was divided into three phases. Phase I, completed in October 1973, was the system definition study. This phase involved development of the analytical model of the exhaust plume and preliminary planning of the emission measurement system to be used on the engine tests. In Phase II, the emissions measurement system was constructed and installed at the General Electric Edwards Flight Test Center at Edwards Air Force Base. Detailed emissions measurements were made throughout the plumes of two afterburning engines, a J85-5 and a J79-15. The measured emissions levels were compared with the predictions of the analytical studies of Phase I. Phase III consisted of refinement of the measurement system and plume model, and definition of the final emissions measurement procedures in a format similar to that of SAE ARP 1256. Emissions measurements on the same two engines were then made to demonstrate these procedures.

In Phase II, complete plume profiles on both engines were obtained at five different axial stations and at four engine power settings, namely, military(Mil), minimum afterburning (Min A/B), intermediate afterburning (Mid A/B), and maximum afterburning (Max A/B). A total of twenty separate test conditions were thus investigated for each engine in the Phase II measurements. In the subsequent tables in this volume, Tables 1 through 20 are Phase II measurements on the J85-5 engine, and Tables 21 through 40 are Phase II measurements on the J79-15 engine.

In Phase III, more limited measurements were made on the two engines to demonstrate the measurement procedures which had been developed. Measurements were made at the same four power levels at two axial stations. Tables 41 through 48 give Phase III measurements on the J85-5, and Tables 49 through 56 give Phase III measurements on the J79-15.

To facilitate locating data for a particular test condition, Figure 1 presents a complete listing of table numbers for each engine test condition. Also shown in Figure 1 (Column 3) is the type of probe system used for each test. For each engine, the high-temperature probes were used for the three axial stations nearest the engine, and the low-temperature probes were used for the two more remote axial stations.

Figure 2 shows the high-temperature probe geometry, and Figure 3 shows the low-temperature probe geometry. In each case, the No. 1 probe axis of rotation was on the right side of the engine (aft looking forward), so that this probe swept an arc through the upper right and lower left quadrants. Similarly, the No. 2 probe swept through the upper left and lower right quadrants. The upper quadrant is positive radial position and the lower quadrant negative in the following tables.

Each table gives the probe number, radial probe position, measured gas composition, fuel-air ratio, emission indices, total and static pressures, total temperature, and flow rates. The gas composition is the "as-measured" value which is on a "wet" basis for HC, NO and NO<sub>x</sub> and on a "semi-dry" basis for CO and CO<sub>2</sub>, as explained in the text of the main volume of this report. Static pressure was measured only when using the low-temperature probes. The listed static pressure was the ambient pressure when using the high-temperature probes. Similarly, total temperature was measured only with the low-temperature probes and was calculated from the gas composition when using the high-temperature probes.

Data in these tables should be utilized with due regard to the accuracy of each of the measured values, especially at downstream locations where concentrations approach ambient levels due to the high dilution factor. In some cases, examination of overall integrated emissions levels, as tabulated in the main report volume, will identify certain inconsistencies indicating uncertainty in particular measured local values.

Figure 1. Listing of Table Numbers for Each Engine Test Condition.

<u>Engine</u>	<u>Probe Type</u>	<u>Axial Station (ft)</u>	<u>Table Number for Engine Power Level</u>			
			<u>Mil</u>	<u>Min A/B</u>	<u>Mid A/B</u>	<u>Max A/B</u>
PHASE II TEST SERIES:						
J85-5	Hi-Temp	0	1	2	3	4
J85-5	Hi-Temp	3.75	5	6	7	8
J85-5	Hi-Temp	7.5	9	10	11	12
J85-5	Lo-Temp	15	13	14	15	16
J85-5	Lo-Temp	30	17	18	19	20
J79-15	Temp	0	21	22	23	24
J79-15	Temp	7.5	25	26	27	28
J79-15	Hi-Temp	15	29	30	31	32
J79-15	Lo-Temp	30	33	34	35	36
J79-15	Lo-Temp	60	37	38	39	40
PHASE III TEST SERIES:						
J85-5	Hi-Temp	0	41	42	43	44
J85-5	Lo-Temp	30	45	46	47	48
J79-15	Hi-Temp	0	49	50	51	52
J79-15	Lo-Temp	60	53	54	55	56

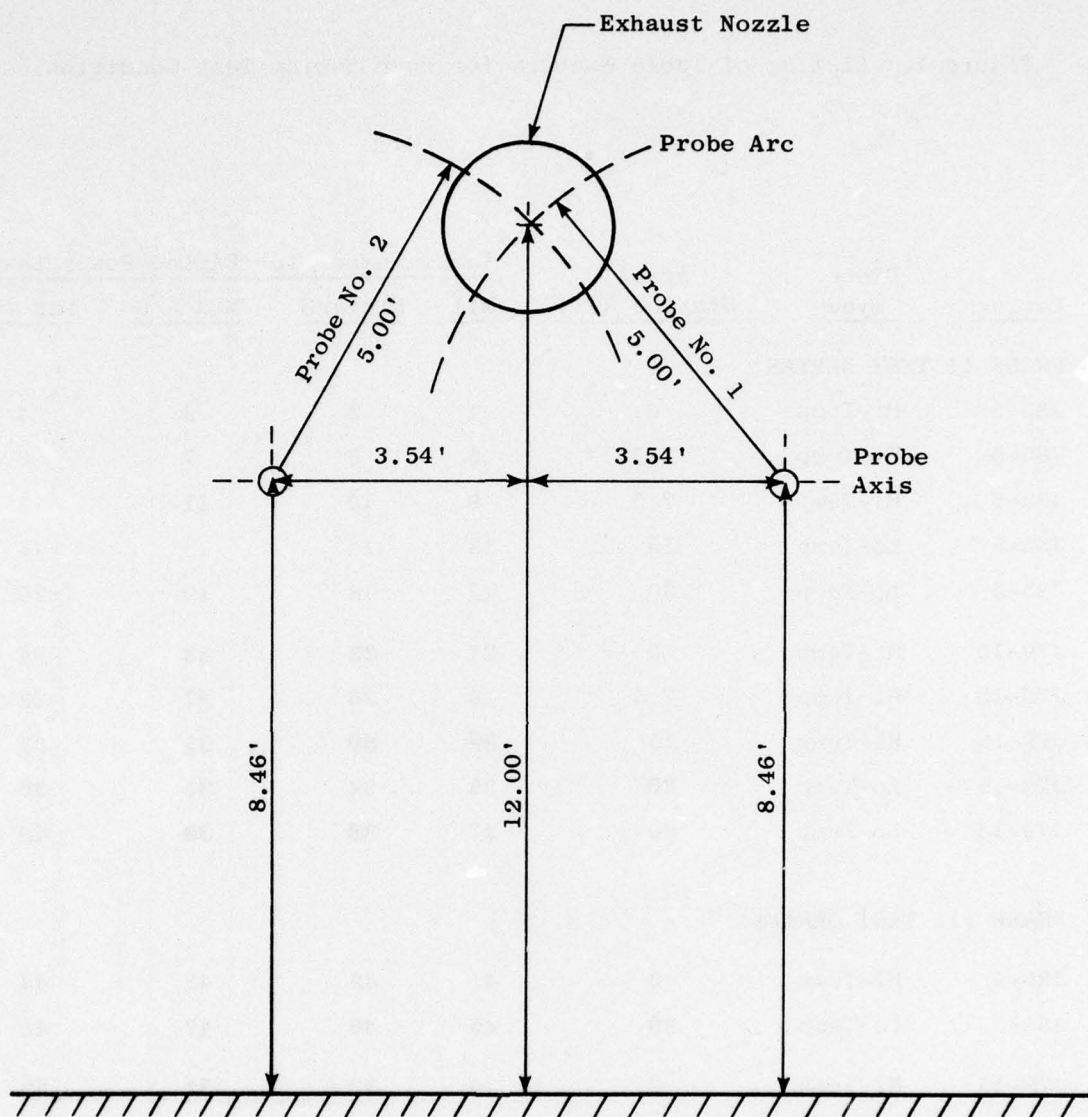


Figure 2. High Temperature Probe Geometry; Aft Looking Forward.

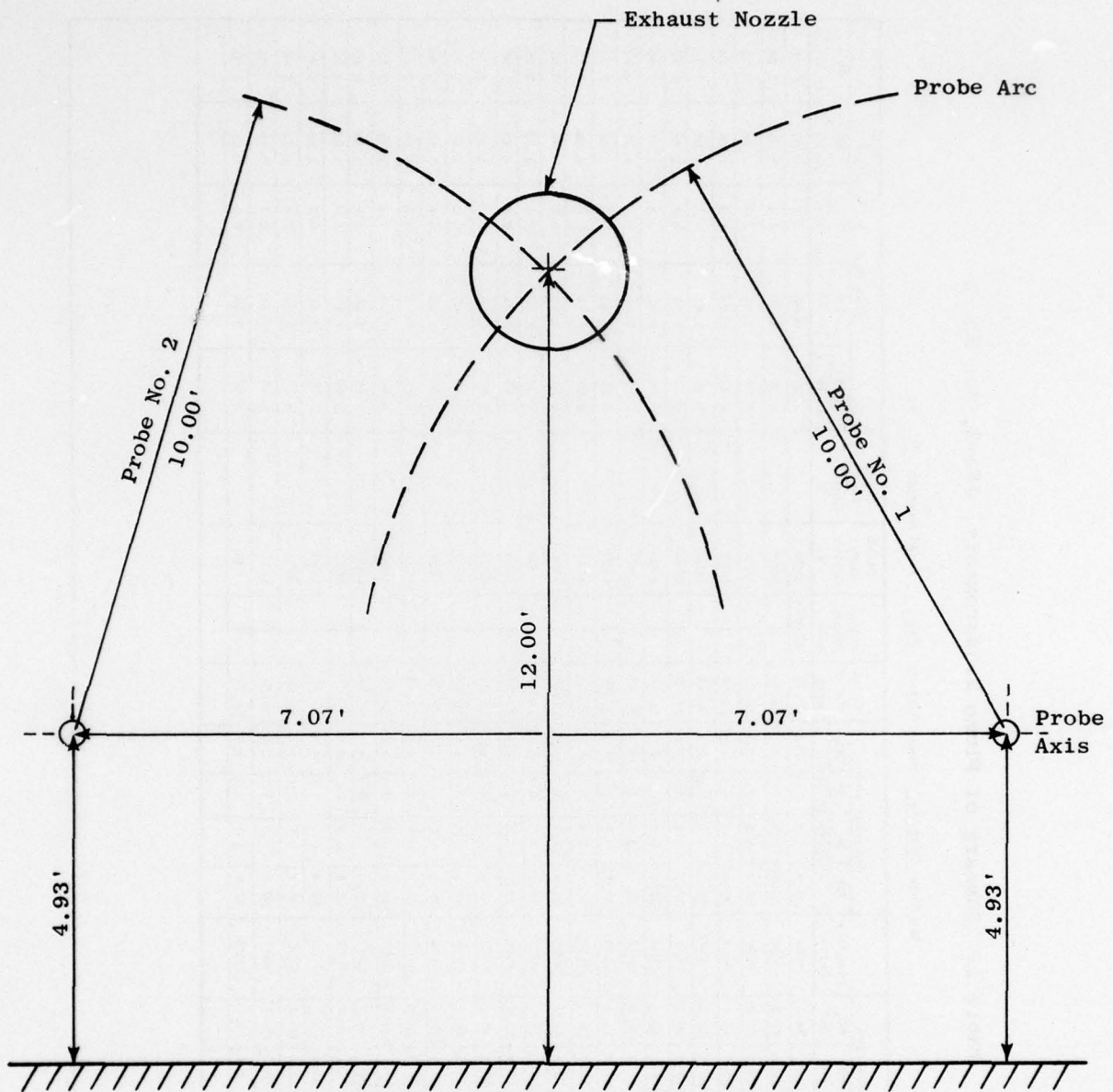


Figure 3. Low Temperature Probe Geometry; Aft Looking Forward.

Table 1. Summary of Plume Measurements, J85-5, Run No. 3.

Run Date 2/25/74, Power Setting MIL, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO					Fuel <sup>1</sup> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> -5 (x 10 <sup>-5</sup> )
1	6.35	404	2.13	48.2	12.0	24.6	.0104	37.0	2.3	1.8	3.8	17.78	13.67	1278	2.32	0.86	5.3	0.42	0.88
1	5.24	741	3.92	57.6	22.2	43.8	.0190	37.0	1.5	1.9	3.7	28.48		1838	6.39	2.36	9.6	1.21	2.36
1	3.85	744	4.05	47.7	25.3	47.6	.0196	36.0	1.2	2.1	3.9	28.64		1874	6.55	2.36	7.9	1.38	2.55
1	2.79	736	4.07	42.2	25.7	50.7	.0197	35.4	1.1	2.1	4.2	28.89		1881	6.62	2.34	7.3	1.39	2.78
1	1.58	698	4.01	37.7	27.5	49.8	.0194	34.1	1.0	2.3	4.1	28.84		1863	5.54	1.89	5.5	1.27	2.27
1	0.65	688	3.96	36.3	27.8	50.5	.0191	34.1	0.9	2.3	4.3	27.76		1848	6.27	2.14	5.6	1.44	2.70
1	-1.56	668	3.93	35.1	29.1	50.5	.0190	33.4	0.9	2.5	4.3	26.84		1839	6.05	2.02	5.4	1.51	2.60
1	-2.24	673	3.77	35.1	28.1	49.9	.0182	35.0	0.9	2.5	4.4	27.61		1792	6.05	2.12	5.4	1.51	3.99
1	-4.01	711	3.69	42.1	25.3	47.8	.0179	37.7	1.2	2.3	4.3	28.58		1769	6.17	2.33	7.4	1.42	2.65
1	-4.72	706	3.57	38.4	25.0	48.1	.0173	38.7	1.1	2.3	4.5	28.64		1732	6.05	2.34	6.6	1.39	2.72
1	-6.32	331	1.69	37.0	12.8	24.7	.0082	38.4	2.2	2.5	4.8	17.58		1126	1.91	0.73	4.2	0.48	0.92
1	-7.23	181	0.70	31.0	6.2	12.2	.0034	50.1	4.3	2.8	5.6	14.39		802	0.40	2.02	17.4	1.13	2.29
2	5.31	607	2.59	41.5	16.4	36.2	.0126	45.7	1.6	2.1	4.6	14.54		1428	3.68	1.68	5.9	0.77	1.69
2	4.58	746	3.42	39.7	23.5	47.7	.0166	42.6	1.2	2.3	4.6	14.29		1689	5.87	2.50	7.0	1.35	2.70
2	3.49	726	3.45	36.2	25.5	48.5	.0168	41.1	1.1	2.4	4.6	19.28		1697	5.89	2.42	6.5	1.41	2.71
2	2.41	686	3.43	33.0	27.1	49.2	.0166	39.1	1.0	2.6	4.7	28.28		1691	5.87	2.30	5.9	1.53	2.76
2	1.38	666	3.44	32.0	28.3	49.8	.0167	37.9	0.9	2.7	4.8	27.45		1695	5.85	2.22	5.3	1.58	2.81
2	0.64	671	3.44	31.2	27.9	49.7	.0167	38.2	0.9	2.7	4.8	28.39		1693	5.85	2.24	5.3	1.58	2.81
2	-1.17	686	3.44	33.4	28.2	50.1	.0167	39.0	1.0	2.7	4.8	27.86		1695	5.85	2.28	5.9	1.58	2.81
2	-2.53	676	3.44	31.5	27.5	49.9	.0167	38.4	0.9	2.6	4.8	27.45		1695	5.86	2.25	5.3	1.52	2.81
2	-3.62	719	3.41	31.8	26.5	49.7	.0165	41.2	0.9	2.6	4.8	27.86		1684	5.86	2.41	5.3	1.52	2.81
2	-4.71	696	3.36	28.6	26.5	50.4	.0163	40.4	0.9	2.6	5.0	26.58		1671	5.77	2.33	5.2	1.50	2.89
2	-5.80	365	1.80	26.9	15.5	29.5	.0087	39.6	1.5	2.8	5.3	16.82		1171	1.82	0.72	2.7	0.51	0.96
2	-6.90	226	0.52	22.9	2.8	5.7	.0025	82.9	4.2	1.7	3.5	13.70		739	0.06	0.05	0.3	0.01	0.02

Table 2. Summary of Plume Measurements, J85-5, Run No. 4-1.

Run Date 2/26/74, Power Setting MIN A/B, Axial Station 0 ft

Probe No.	Radial Position In.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	6.17	2076	3.66	4501	3.8	30.2	.0205	95.7	107.6	0.3	2.4	25.65	13.60	1759		6.40	6.12	6.89	1.9	1.54
1	5.10	2331	5.51	2014	4.1	41.4	.0281	78.1	35.6	0.2	2.4	28.79		2281		8.42	6.58	3.00	1.7	2.02
1	4.03	2302	6.19	1470	5.0	46.0	.0309	69.9	23.7	0.3	2.4	28.48		2459		8.80	6.15	2.09	2.6	2.11
1	2.96	2154	5.87	1994	3.9	44.6	.0296	68.3	33.5	0.2	2.5	28.33		2373		8.56	5.85	2.87	1.7	2.14
1	1.88	2080	5.11	3439	3.5	42.9	.0268	73.2	63.6	0.2	2.6	27.97		2166		8.05	5.89	5.12	1.6	2.09
1	0.96	2022	4.83	3795	3.6	42.6	.0256	74.4	73.2	0.2	2.7	27.50		2089		7.74	5.76	5.67	1.5	2.09
1	-0.72	1878	4.80	3191	3.6	44.4	.0251	70.5	62.8	0.2	2.9	28.17		2081		7.78	5.48	4.89	1.6	2.26
1	-1.56	1872	4.85	2928	4.1	45.3	.0252	70.0	57.4	0.3	2.9	16.04		2094		3.34	2.34	1.92	1.0	0.97
1	-2.50	1913	5.35	1633	4.8	49.2	.0270	66.9	30.1	0.3	3.0	25.24		2234		7.24	4.84	2.18	2.2	2.17
1	-3.65	1806	5.85	808	8.2	51.9	.0288	59.1	14.0	0.5	2.9	25.29		2367		7.51	4.44	1.05	3.8	2.18
1	-4.72	2170	5.61	1406	5.0	48.1	.0281	72.6	24.8	0.3	2.8	27.66		2305		8.09	5.87	2.01	2.4	2.27
1	-5.79	2355	4.74	3924	3.8	41.6	.0255	87.3	76.2	0.2	2.7	28.38		2070		7.95	6.94	6.06	1.6	2.15
2	6.23	2138	3.61	6593	3.8	28.9	.0214	94.7	151.5	0.3	2.2	24.24		1741		6.31	5.98	9.56	1.9	1.39
2	5.14	3308	6.05	3356	4.0	40.0	.0317	98.1	52.9	0.2	2.1	28.13		2427		8.96	8.79	4.74	1.8	1.88
2	4.41	2286	6.82	1256	4.9	46.2	.0337	63.5	18.7	0.2	2.3	28.08		2617		9.13	5.80	1.71	1.8	2.10
2	3.32	2179	6.68	1669	4.6	47.1	.0332	61.5	25.2	0.2	2.3	28.03		2578		9.06	5.57	2.28	1.8	2.08
2	2.24	2351	6.19	2567	3.8	45.5	.0315	70.1	40.6	0.2	2.4	28.08		2456		8.85	6.20	3.59	1.8	2.12
2	1.22	2285	5.63	3444	3.6	43.6	.0293	73.4	58.4	0.2	2.4	28.13		2307		8.54	6.27	4.99	1.7	2.05
2	-0.63	2056	5.02	4244	3.5	42.5	.0268	72.3	78.5	0.2	2.6	28.13		2142		8.14	5.89	6.39	1.6	2.12
2	-1.49	1913	5.37	2870	3.7	45.1	.0285	63.2	46.6	0.2	2.6	28.13		2290		8.34	5.27	3.89	1.7	2.17
2	-2.36	1776	6.69	1148	5.9	49.4	.0328	50.7	17.5	0.3	2.5	28.08		2580		8.97	4.55	1.57	2.7	2.24
2	-3.43	1842	6.80	738	8.6	51.7	.0331	52.1	11.1	0.4	2.6	28.08		2609		9.01	4.69	1.00	3.6	2.34
2	-4.53	2507	6.45	1679	4.2	47.1	.0323	72.8	26.0	0.2	2.4	28.03		2526		8.92	6.49	2.32	1.8	2.14
2	-5.26	2650	4.58	6725	3.8	36.8	.0262	95.4	126.8	0.2	2.3	27.87		2023		8.14	7.77	10.32	1.6	1.87

Table 3. Summary of Plume Measurements, J85-5, Run No. 4-2.

Run Date 2/26/74, Power Setting MID A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>					NO <sub>x</sub> (x 10 <sup>-5</sup> )
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO (x 10 <sup>-6</sup> )		
1	-7.23	3325	5.37	1109	4.0	39.3	.0274	114.1	20.1	0.2	2.3	23.34	13.55	2271		6.74	7.69	1.35	1.3	1.55	
1	-5.79	1193	8.68	55.5	40.8	65.3	.0410	27.1	0.7	1.6	2.6	27.04		3064		9.82	2.66	0.07	15.7	2.55	
1	-4.36	1383	9.46	48.7	53.8	77.8	.0445	28.7	0.6	2.0	2.9	26.89		3239		10.27	2.95	0.06	20.5	2.98	
1	-3.30	1781	8.92	229	37.5	76.5	.0424	39.0	2.7	1.5	3.0	26.77		3122		9.95	3.88	0.27	14.9	2.98	
1	-1.90	2557	7.47	1204	6.6	59.9	.0367	65.0	16.5	0.3	2.7	25.91		2791		8.92	5.80	1.47	2.7	2.41	
1	-0.95	2988	7.03	1767	4.0	54.2	.0352	79.4	25.2	0.2	2.5	24.98		2686		8.43	6.69	2.12	1.7	2.11	
1	0.86	3680	6.92	2293	3.7	51.9	.0353	97.6	32.6	0.2	2.4	25.45		2664		8.64	8.43	2.81	1.7	2.07	
1	1.92	3815	7.38	1689	4.2	55.7	.0371	95.9	22.9	0.2	2.5	26.01		2779		9.07	8.70	2.08	1.8	2.27	
1	3.31	2368	8.84	438	25.2	70.1	.0424	51.8	5.2	1.0	2.7	26.99		3109		10.05	5.21	0.52	10.1	2.71	
1	4.38	1354	9.43	79.4	48.2	73.6	.0444	28.2	0.9	1.8	2.8	27.30		3232		10.39	2.93	0.09	18.7	2.91	
1	5.81	1174	8.86	39.8	43.4	64.1	.0417	26.1	0.5	1.7	2.5	27.20		3103		9.98	2.60	0.05	17.0	2.50	
1	6.89	2785	5.89	811	4.0	41.6	.0294	89.0	13.7	0.2	2.3	25.19		2403		7.58	6.75	1.04	1.5	1.74	
2	-7.10	2650	7.87	709	12.7	53.0	.0383	64.5	9.3	0.5	2.3	26.42		2887		9.29	5.99	0.86	4.6	2.14	
2	-5.82	1225	9.28	28.0	50.7	69.8	.0436	26.0	0.3	1.9	2.7	26.94		3197		10.16	2.64	0.03	19.3	2.74	
2	-4.55	1652	9.53	68.5	52.8	78.6	.0450	34.0	0.8	2.0	2.9	27.09		3255		10.41	3.54	0.08	20.8	3.02	
2	-3.46	2450	9.12	335	35.2	75.9	.0437	52.0	3.9	1.3	2.9	27.15		3173		10.28	5.35	0.40	13.4	2.98	
2	-2.57	3460	7.62	1715	5.4	58.2	.0381	84.8	22.7	0.2	2.5	26.99		2832		9.51	8.06	2.16	1.9	2.38	
2	-1.69	3696	6.77	3114	3.4	49.5	.0350	98.8	44.5	0.2	2.3	26.89		2627		9.10	8.99	4.05	1.8	2.09	
2	-0.63	3376	7.04	2618	3.8	49.7	.0359	88.0	36.6	0.2	2.3	26.78		2691		9.16	8.06	3.35	1.8	2.11	
2	1.02	2507	8.26	883	13.2	60.1	.0401	58.2	11.1	0.5	2.5	26.89		2976		9.71	5.65	1.08	4.9	2.43	
2	1.83	1924	9.31	222	38.5	72.0	.0442	40.3	2.6	1.4	2.7	26.99		3209		10.28	4.14	0.27	14.4	2.78	
2	3.25	1495	9.73	83.5	53.5	77.3	.0458	30.3	0.9	1.9	2.8	26.94		3297		10.47	3.17	0.09	19.9	2.93	
2	4.33	1191	9.85	25.1	60.0	79.0	.0462	23.8	0.3	2.2	2.9	27.15		3322		10.58	2.52	0.03	23.3	3.07	
2	5.42	1534	8.43	67.2	36.1	61.2	.0400	35.6	0.8	1.5	2.5	26.73		3710		9.59	3.41	0.08	14.4	2.40	

Table 4. Summary of Plume Measurements, J85-5, Run No. 4-3.

Run Date 2/26/74, Power Setting MAX A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-5</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-7.59	1163	5.11	15.3	20.2	38.3	.0247	44.4	0.3	1.3	2.5	18.71	13.55	2179		4.60	2.04	0.14	0.60	1.15
1	-6.51	4675	10.97	6.9	57.6	85.1	.0527	81.6	0.1	1.8	2.7	25.86		3586		11.02	8.99	0.11	1.98	2.98
1	-5.08	8396	11.92	8.5	70.2	102	.0585	131.4	0.1	2.0	3.0	26.17		3804		11.91	15.65	0.12	2.38	3.57
1	-3.65	9786	11.45	40.2	61.6	99.7	.0571	157.2	0.4	1.8	2.9	26.17		3721		11.78	18.52	0.47	2.12	3.42
1	-2.24	6532	10.04	346	32.3	78.8	.0496	121.6	3.6	1.1	2.7	25.45		3404		10.52	12.79	3.79	1.16	2.84
1	-0.95	5502	9.07	820	13.1	61.9	.0451	113.1	9.2	0.5	2.3	25.14		3186		9.84	11.13	9.05	0.49	2.26
1	0.73	5603	9.12	816	13.5	59.3	.0454	114.5	9.1	0.5	2.2	24.62		3197		9.67	11.07	8.80	0.48	2.13
1	1.92	6684	9.85	428	25.1	68.5	.0489	126.3	4.5	0.9	2.1	24.98		3366		10.26	12.96	4.62	0.92	2.15
1	3.67	9061	11.20	68.3	51.3	87.8	.0558	149.8	0.6	1.6	2.7	25.76		3666		11.43	17.12	0.69	1.83	3.09
1	4.74	10133	12.10	14.4	68.9	102	.0601	154.3	0.1	1.9	2.9	26.37		3853		12.22	18.86	0.12	2.32	3.54
1	6.17	5319	11.16	7.2	54.8	79.5	.0579	94.1	0.1	1.7	2.5	26.17		3630		11.30	10.63	0.11	1.92	2.83
1	7.25	2286	6.31	78.4	15.1	38.4	.0308	69.7	1.3	0.8	0.8	21.74		2505		6.59	4.59	0.86	0.53	0.53
2	-8.00	1907	5.79	76.5	19.4	43.6	.0282	63.6	1.4	1.1	2.5	19.93		2368		7.63	4.85	1.07	0.84	1.91
2	-6.55	7713	11.92	5.7	66.6	95.2	.0582	121.4	0.1	1.9	2.8	26.32		3799		11.93	9.26	0.08	1.45	2.14
2	-5.46	8744	11.55	10.0	61.9	93.4	.0571	140.5	0.1	1.8	2.8	25.08		3734		11.29	15.86	0.11	2.03	3.16
2	-4.19	11473	11.07	52.5	50.2	87.0	.0563	187.5	0.5	1.5	2.6	24.93		3657		11.18	20.96	0.56	1.68	2.91
2	-2.93	9984	10.45	198	37.2	79.0	.0530	173.8	1.9	1.2	2.5	24.62		3320		10.65	18.51	2.02	1.28	2.66
2	-1.36	6143	8.54	1591	6.4	57.3	.0434	131.5	18.6	0.2	2.2	25.59		3071		9.84	12.94	18.3	0.20	2.16
2	-0.63	5738	8.93	1184	10.5	62.7	.0448	118.9	13.4	0.4	2.3	25.59		3156		9.98	11.87	13.37	0.40	2.30
2	1.49	7038	10.83	149	44.0	79.7	.0537	120.7	1.4	1.4	2.5	25.90		3596		11.20	13.52	1.57	1.57	2.80
2	2.53	7780	11.72	26.7	59.5	90.9	.0574	124.3	0.2	1.8	2.7	26.00		3760		11.70	14.54	0.23	2.11	3.16
2	3.78	10133	12.34	7.7	76.5	105	.0611	154.5	0.1	2.1	2.9	26.47		3900		12.38	18.76	0.12	2.60	3.56
2	4.87	11275	12.30	7.4	73.9	97.3	.0615	167.7	0.1	2.0	2.7	26.42		3899		12.42	20.83	0.12	2.48	3.36
2	5.79	4911	10.07	6.8	42.5	66.4	.0488	92.9	0.1	1.5	2.3	25.02		3399		10.21	9.49	0.10	1.53	2.35

Run Date 2/27/74, Power Setting MIL, Axial Station 3.75 ft

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Table 6. Summary of Plume Measurements, J85-5, Run No. 6-1.

Run Date 2/28/74, Power Setting MIN A.B, Axial Station 3.75 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
1	-9.74	700	1.10	1050	2.0	11.5	.0061	109	83.0	0.5	3.0	14.48	13.61	916		0.75	.818	62.3	.038
	-8.66	932	1.47	1112	1.9	15.1	.0089	111	67.3	0.4	3.0	15.41		1046		1.31	1.45	88.2	.052
	-7.59	1193	2.04	1361	2.1	18.9	.0110	104	60.4	0.3	2.7	16.60		1246		2.11	2.19	127	.063
	-6.15	1359	3.09	1584	2.5	26.9	.0162	91.4	48.0	0.2	2.7	20.04		1580		3.99	3.65	192	.080
	-4.36	1809	4.49	1428	3.2	38.3	.0228	75.0	31.0	0.2	2.7	25.85		1991		6.67	5.00	207	.133
	-2.94	1847	5.17	1439	4.0	44.8	.0260	66.9	27.5	0.3	2.8	28.12		2180		7.82	5.23	215	.235
	-1.24	1907	5.13	2045	3.5	45.0	.0261	68.8	38.9	0.2	2.8	28.06		2167		7.86	5.41	306	.157
	0.83	1999	5.10	2268	3.3	43.7	.0262	72.1	43.1	0.2	2.7	26.22		2160		7.92	5.71	341	.158
	2.26	2022	5.03	2175	3.2	41.9	.0258	73.9	41.9	0.2	2.6	28.17		2143		7.84	5.79	328	.157
	3.67	1897	4.20	1879	2.7	35.3	.0217	82.7	42.8	0.2	2.6	25.08		1910		6.31	5.22	270	.126
	5.45	1654	3.10	1744	2.1	27.3	.0164	95.9	52.3	0.2	2.7	20.25		1585		4.08	3.91	213	.082
	6.89	1322	2.09	1496	1.8	20.1	.0113	111	64.3	0.3	2.8	17.11		1262		2.34	2.60	150	.070
	7.96	998	1.44	1236	1.7	15.2	.0079	120	75.3	0.3	3.0	15.46		1036		1.26	1.51	94.9	.038
	10.12	447	0.67	798	1.3	8.4	.0037	112	101	0.6	3.5	13.77		787		0.21	.235	21.2	.013
	11.55	298	0.38	450	1.0	5.7	.0021	130	98.4	0.8	4.1	13.61		663		0	0	0	0
2	10.53	237	0.28	469	1.5	4.8	.0016	136	135	1.4	4.5	13.61		616		0	0	0	0
	11.78	78	0.03	170.3	0.8	2.0	.0001	273	298	4.4	11.5	13.61		512		0	0	0	0
	13.24	20	0.03	40	0.4	1.2	.0000	103	104	3.3	10.4	13.61		511		0	0	0	0
	9.07	478	0.73	1077	1.9	9.0	.0042	108	122	0.7	3.4	14.02		806		0.37	.400	45.1	.026
	7.24	900	1.25	1428	2.5	13.8	.0070	121	97.6	0.6	3.1	14.90		966		1.02	1.23	99.5	.061
	6.15	1342	2.07	1983	2.5	20.1	.0115	111	84.2	0.4	2.8	17.08		1257		2.36	2.62	199	.094
	4.33	1722	3.08	1826	2.8	27.9	.0164	99.6	57.6	0.3	2.7	20.51		1580		4.17	4.15	240	.125
	3.06	1910	4.32	1532	3.2	37.0	.0221	81.6	34.3	0.2	2.7	25.33		1946		6.43	5.25	221	.129
	1.66	2032	5.18	1459	4.2	44.0	.0261	73.3	27.8	0.3	2.7	27.92		2184		7.80	5.72	217	.234
	.68	1990	5.01	1817	3.7	44.5	.0255	73.5	35.4	0.2	2.8	27.98		2138		7.72	5.67	273	.154
	-1.36	1929	4.75	2454	3.2	44.1	.0246	74.0	49.5	0.2	2.9	27.98		2064		7.58	5.61	375	.152
	-2.93	2045	4.79	2387	3.2	42.9	.0248	77.9	47.8	0.2	2.8	28.18		2075		7.66	5.97	366	.153

Table 7. Summary of Plume Measurements, J85-5, Run No. 6-2.

Run Date 2/28/74, Power Setting MID A/B, Axial Station 3.75 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>				Fuel (x 10 <sup>-3</sup> )	CO <sub>2</sub> (x 10 <sup>-3</sup> )	HC (x 10 <sup>-4</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-10.46	824	2.30	125	3.9	17.9	.0114	68.8	5.3	0.5	2.5	15.21	13.60	1334	1.56	1.07	8.27	0.078
1	-9.19	983	3.37	114	7.8	24.9	.0165	56.4	3.4	0.8	2.4	16.39		1672	2.65	1.49	9.01	0.212
1	-7.75	1087	4.69	64.7	13.4	34.0	.0227	45.1	1.4	1.0	2.4	18.19		2054	4.14	1.87	5.80	0.414
1	-6.32	1056	6.69	36.2	26.4	45.6	.0319	31.0	0.6	1.4	2.3	19.64		2379	5.84	1.81	3.50	0.818
1	-4.53	1089	9.02	30.7	43.9	63.5	.0424	23.8	0.4	1.7	2.5	25.75		3128	9.59	2.28	3.84	1.63
1	-2.76	1410	9.84	58.1	47.2	70.5	.0462	28.2	0.6	1.7	2.5	26.62		3309	10.42	2.94	6.25	1.77
1	-0.82	1553	9.75	75.5	41.9	68.4	.0459	31.3	0.8	1.5	2.5	26.52		3292	10.35	3.24	8.28	1.55
1	1.11	1431	10.01	50.4	46.6	69.6	.0470	28.1	0.5	1.7	2.5	26.52		3346	10.48	2.94	5.24	1.78
1	2.79	1156	9.78	27.9	47.0	67.2	.0458	23.3	0.3	1.7	2.4	26.32		3295	10.25	2.39	3.08	1.74
1	4.56	988	7.49	26.8	29.7	49.3	.0355	26.0	0.4	1.4	2.3	22.87		2772	7.61	1.98	3.04	1.07
1	6.35	948	5.01	42.0	16.0	33.3	.0242	37.0	0.9	1.1	2.2	18.66		2141	4.50	1.67	4.05	0.495
1	8.14	778	3.09	65.4	8.0	20.7	.0151	49.0	2.1	0.9	2.2	15.93		1582	2.27	1.11	4.77	0.204
1	10.29	446	1.55	75.9	3.0	12.9	.0076	55.5	4.8	0.6	2.7	14.38		1078	0.82	0.455	3.94	0.049
1	11.72	275	0.82	56.7	1.8	8.4	.0040	64.5	6.7	0.7	3.3	13.66		837	0.13	0.084	0.871	0.043
1	13.87	118	0.34	33.2	1.3	3.0	.0016	67.1	9.5	1.2	2.8	13.71		648	0.08	0.054	0.616	0.019
2	-11.65	763	1.72	137	2.2	12.9	.0086	83.9	7.7	0.4	2.4	14.28		1143	0.84	0.705	6.47	0.034
2	-9.46	1176	3.33	140	3.9	22.9	.0165	67.8	4.2	0.4	2.2	16.04		1663	2.48	1.68	10.4	0.099
2	-7.64	1348	6.27	72.6	17.1	40.0	.0302	42.0	1.2	0.9	2.2	20.61		2475	6.06	2.54	7.27	0.545
2	-5.82	1204	8.84	31.7	38.6	59.1	.0417	26.8	0.4	1.5	2.4	25.07		3087	9.24	2.48	3.70	1.39
2	-4.01	1416	10.43	51.4	49.0	73.1	.0488	26.7	0.5	1.7	2.5	26.94		3436	10.88	2.90	5.44	1.85
2	-2.22	1821	9.75	121	35.8	66.1	.0461	36.6	1.3	1.3	2.4	26.47		3294	10.35	3.79	13.5	1.35
2	-0.69	1635	9.98	102	40.5	67.0	.0470	32.2	1.1	1.4	2.4	26.58		3341	10.51	3.38	11.6	1.47
2	1.67	1034	11.00	29.8	53.1	73.8	.0511	18.6	0.3	1.7	2.4	27.30		3550	11.31	2.10	3.39	1.92
2	3.42	932	9.74	9.0	45.7	64.3	.0455	18.9	0.2	1.7	2.4	26.00		3283	10.09	1.90	2.02	1.72
2	5.32	1187	6.77	49.0	22.7	43.0	.0323	34.4	0.8	1.2	2.2	21.08		2600	6.51	2.24	5.21	0.781
2	7.05	1134	3.87	126	6.2	25.5	.0190	56.7	3.3	0.5	2.2	16.56		1821	2.98	1.69	9.83	0.149
2	8.87	840	2.17	166	2.4	15.6	.0108	74.0	7.5	0.4	2.3	14.59		1291	1.18	.873	8.85	0.047
2	11.06	410	1.01	129	1.8	9.2	.0050	77.1	12.3	0.5	2.9	13.76		892	0.27	.208	3.32	0.014

Table 8. Summary of Plume Measurements, J85-5, Run No. 6-3.

Run Date 2/28/75, Power Setting MAX A/B, Axial Station 3.75 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC	NO	NO <sub>x</sub>					Fuel <sub>3</sub> (× 10 <sup>-3</sup> )	CO (× 10 <sup>-4</sup> )	HC (× 10 <sup>-6</sup> )	NO (× 10 <sup>-5</sup> )	NO <sub>x-5</sub> (× 10 <sup>-5</sup> )
1	12.98	210	0.72	15.9	3.7	5.5	.0035	56.6	2.2	1.6	2.5	13.71	806	0.17	0.096	0.374	0.027	0.043		
1	10.65	579	2.29	16.5	9.5	17.3	.0112	49.1	0.7	1.4	2.5	14.43	1328	1.12	0.550	0.784	0.157	0.280		
1	8.32	1076	4.66	14.7	17.2	32.1	.0226	45.1	0.3	1.2	2.3	16.34	2045	3.21	1.45	0.963	0.385	0.738		
1	6.52	1932	7.97	13.5	32.9	54.4	.0381	47.3	0.2	1.4	2.4	20.14	2895	6.78	3.21	1.36	0.949	1.63		
1	4.20	6307	12.41	13.8	56.8	85.7	.0597	96.6	0.1	1.5	2.4	25.39	3874	11.69	11.3	1.75	1.75	2.81		
1	2.26	6222	13.38	13.9	58.3	89.0	.0638	88.7	0.1	1.6	2.4	25.65	4060	12.26	10.9	1.23	1.96	2.94		
1	-0.85	4196	12.83	13.9	57.4	84.1	.0605	61.9	0.1	1.6	2.4	25.39	3940	11.73	7.26	1.17	1.88	2.82		
1	-2.41	4766	13.04	13.7	60.5	89.2	.0617	70.4	0.1	1.7	2.5	25.85	3984	12.09	8.51	1.21	2.06	3.02		
1	-4.36	5511	12.55	13.5	61.0	87.4	.0599	84.0	0.1	1.5	2.5	25.70	3896	11.83	9.94	1.18	1.77	2.96		
1	-6.51	2182	9.07	13.1	36.0	58.1	.0431	46.3	0.2	1.4	2.2	21.58	3147	8.02	3.71	1.60	1.12	1.76		
1	-8.83	1070	5.35	13.5	17.6	33.5	.0259	39.0	0.3	1.1	2.1	17.11	2238	3.95	1.54	1.19	0.435	0.830		
1	-10.98	631	3.14	14.5	11.4	20.5	.0152	39.3	0.5	1.2	2.2	15.26	1597	1.94	0.762	0.970	0.233	0.427		
2	11.78	261	0.89	18.5	3.8	8.8	.0043	56.8	2.0	1.4	3.2	13.60	858	0	0	0	0	0		
2	9.96	514	2.20	17.7	9.4	17.6	.0107	45.7	0.8	1.4	2.6	14.28	1296	0.98	0.448	0.784	0.137	0.255		
2	7.41	1109	4.49	15.7	16.9	31.8	.0218	48.1	0.4	1.3	2.4	16.04	1999	2.97	1.43	1.19	0.386	0.713		
2	5.59	2354	9.18	13.8	40.8	65.4	.0437	49.9	0.2	1.6	2.5	21.32	3174	7.93	3.96	1.59	1.27	1.98		
2	3.42	6967	13.15	13.6	62.7	94.0	.0631	101	0.1	1.7	2.5	25.85	4021	12.29	12.4	1.23	2.09	3.07		
2	1.02	6527	13.73	14.0	64.2	94.0	.0654	90.6	0.1	1.7	2.4	26.11	4127	12.65	11.5	1.27	2.15	3.04		
2	-1.53	3869	12.55	14.3	55.2	81.5	.0592	59.7	0.1	1.6	2.3	25.33	3883	11.56	6.90	1.16	1.85	2.66		
2	-3.28	6933	13.23	14.0	56.3	86.8	.0635	99.4	0.1	1.5	2.3	25.90	4037	12.35	12.28	1.24	1.85	2.84		
2	-5.09	7644	13.01	13.6	53.9	87.0	.0629	111	0.1	1.5	2.4	25.95	4000	12.32	13.68	1.23	1.85	2.96		
2	-7.64	2155	8.69	13.3	32.0	52.8	.0415	48.3	0.2	1.3	2.1	20.66	3063	7.40	3.57	1.48	0.962	1.55		
2	-9.83	1081	4.75	14.5	14.4	28.8	.0230	44.5	0.3	1.0	2.0	16.35	2069	3.26	1.45	0.978	0.326	0.652		
2	-12.01	466	2.07	16.3	8.2	14.8	.0101	44.0	0.8	1.3	2.3	14.18	1253	0.86	0.378	0.688	0.112	0.198		
2	-14.19	249	0.91	16.1	4.3	6.9	.0044	52.9	1.7	1.5	2.4	13.71	865	0.20	0.106	0.340	0.030	0.048		

Table 9. Summary of Plume Measurements, J85-5, Run No. 7-1.

Run Date 3/1/74, Power Setting MIL, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
								lb/1000 lb Fuel	lb/1000 lb Fuel	lb/1000 lb Fuel	lb/1000 lb Fuel									
1	-11.53	163	0.71	19.7	5.7	11.1	.0034	44.4	2.7	2.6	5.0	14.57	13.61	800		0.47	0.21	1.27	0.12	0.24
1	-9.02	241	1.15	21.4	8.2	16.2	.0056	40.9	1.8	2.3	4.6	15.90		926		1.10	0.49	1.98	0.25	0.51
1	-6.51	322	1.59	23.2	10.5	21.6	.0077	39.6	1.5	2.2	4.4	18.07		1082		1.94	0.77	2.91	0.43	0.85
1	-4.01	410	2.18	25.3	14.1	28.7	.0106	36.8	1.2	2.1	4.3	21.88		1282		3.28	1.21	3.94	0.69	1.41
1	-1.56	466	2.56	27.6	16.3	33.7	.0124	35.6	1.1	2.1	4.4	25.02		1406		4.26	1.52	4.69	0.90	1.87
1	1.26	458	2.48	29.1	15.4	32.5	.0120	36.2	1.2	2.1	4.3	24.35		1378		4.05	1.47	4.86	0.85	1.74
1	3.67	385	1.88	29.0	11.8	26.0	.0091	40.0	1.5	2.1	4.5	19.87		1181		2.59	1.04	3.89	0.54	1.17
1	6.17	293	1.36	26.4	8.6	18.7	.0066	42.0	1.9	2.1	4.5	16.63		996		1.43	0.60	2.72	0.30	0.64
1	8.68	218	0.94	23.6	6.3	13.6	.0045	45.3	2.5	2.2	4.7	15.08		868		0.74	0.34	1.85	0.16	0.35
1	11.19	141	0.50	20.5	4.1	8.3	.0024	54.0	4.0	2.6	5.3	14.10		723		0.25	0.14	1.00	0.07	0.13
1	13.70	84.4	0.21	18.4	2.7	5.1	.0009	76.7	8.4	4.0	7.7	13.74		585		0.06	0.46	0.50	0.02	0.05
2	-16.52	61.1	0.13	17.0	2.3	4.0	.0005	90.7	12.7	5.8	9.8	13.66		552		0.02	0.18	0.25	0.01	0.02
2	-13.94	116	0.40	18.0	4.2	7.5	.0019	55.9	4.4	3.3	6.0	14.02		672		0.18	0.10	0.79	0.06	0.11
2	-11.65	176	0.72	19.3	6.0	11.7	.0034	47.6	2.6	2.7	5.2	14.59		802		0.48	0.23	1.25	0.13	0.25
2	-8.92	257	1.18	21.3	8.4	17.4	.0057	42.5	1.8	2.3	4.6	19.42		934		1.15	0.49	2.07	0.27	0.55
2	-6.00	359	1.78	24.4	12.3	25.1	.0086	39.5	1.4	2.3	4.6	16.04		1146		2.40	0.95	3.36	0.55	1.10
2	-3.28	450	2.45	27.2	15.8	32.4	.0119	35.9	1.1	2.1	4.4	23.77		1370		3.92	1.41	4.31	0.82	1.73
2	-0.69	474	2.63	27.8	17.0	34.9	.0128	35.3	1.1	2.1	4.4	25.33		1427		4.39	1.55	4.83	0.92	1.93
2	2.89	407	2.00	26.9	13.5	28.4	.0097	39.7	1.3	2.2	4.7	21.23		1223		2.98	1.18	3.87	0.66	1.40
2	5.59	294	1.38	23.9	9.1	19.1	.0067	41.7	1.7	2.1	4.5	16.77		1002		1.48	0.62	2.52	0.31	0.67
2	8.51	196	0.83	20.5	6.0	12.5	.0040	46.1	2.4	2.4	4.9	14.69		834		0.57	0.26	1.37	0.14	0.28
2	11.42	119	0.41	18.2	3.8	7.4	.0019	56.6	4.4	3.0	5.8	13.97		674		0.17	0.10	0.75	0.05	0.10
2	13.97	71.6	0.17	16.7	2.6	4.7	.0007	78.4	9.2	4.7	8.4	13.66		570		0.03	0.02	0.28	0.01	0.03

Table 10. Summary of Plume Measurements, J85-5, Run No. 7-2.

Run Date 3/1/74, Power Setting MIN A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO					Fuel <sup>1</sup> (x 10 <sup>-3</sup> )	CO <sup>4</sup> (x 10 <sup>-3</sup> )	HC <sup>6</sup> (x 10 <sup>-6</sup> )	NO <sup>5</sup> (x 10 <sup>-5</sup> )	NO <sub>x</sub> <sup>5</sup> (x 10 <sup>-5</sup> )
1	-17.41	282	0.48	371	0.8	5.2	.0025	104	69.0	0.5	3.1	13.74	722		0.14	0.15	9.66	0.007	0.043
1	-14.20	476	0.99	684	0.9	9.0	.0052	85.8	62.5	0.3	2.7	14.26	889		0.57	0.489	35.6	0.017	0.154
1	-10.98	823	1.54	951	1.2	13.4	.0082	55.8	56.4	0.2	2.6	15.29	1079		1.28	1.23	72.2	0.026	0.333
1	-7.75	1220	2.56	1210	1.3	19.9	.0133	36.9	44.4	0.2	2.4	17.60	1420		2.77	2.41	123	0.055	0.665
1	-4.53	1574	3.68	1399	1.5	27.5	.0189	78.9	36.6	0.1	2.4	21.83	1765		4.91	3.87	180	0.049	1.18
1	-1.39	1771	4.32	1594	1.5	31.6	.0221	75.8	35.8	0.1	2.3	25.18	1952		6.36	4.82	228	0.064	1.46
1	2.09	1635	3.71	1558	1.4	27.4	.0192	80.8	40.2	0.1	2.3	21.93	1776		4.99	4.03	201	0.050	1.15
1	5.27	1283	2.60	1392	1.2	20.2	.0136	89.4	46.6	0.1	2.4	17.50	1436		2.78	2.49	129	0.028	0.667
1	8.50	808	1.46	969	0.9	12.9	.0078	98.2	60.1	0.2	2.6	14.98	1049		1.12	1.0	67.3	0.022	0.291
1	11.72	435	0.84	589	0.8	8.1	.0045	91.8	63.0	0.3	2.8	13.95	849		0.36	0.330	22.68	0.011	0.101
1	14.94	265	0.42	371	0.5	5.0	.0022	109	76.7	0.4	3.4	13.69	695		0.10	0.109	7.67	0.004	0.034
2	-20.51	99.2	0.06	117	0.4	2.0	.0002	248	147	1.8	8.3	13.60	536		0	0	0	0	0
2	-17.26	271	0.40	398	0.8	4.8	.0021	116	85.8	0.6	3.4	13.71	583		0.11	0.128	9.44	0.007	0.037
2	-13.83	487	0.92	739	0.9	8.8	.0049	92.7	71.3	0.3	2.8	14.23	872		0.53	0.491	37.8	0.016	0.148
2	-10.55	1000	1.76	1139	1.2	15.5	.0094	101	59	0.2	2.6	15.63	1158		1.56	1.58	92.0	0.031	0.406
2	-7.28	1409	2.88	1430	1.5	22.1	.0151	88.9	46.6	0.2	2.4	18.69	1523		3.38	3.00	158	0.068	0.811
2	-4.01	1727	4.00	1717	2.1	30.0	.0206	79.2	41.1	0.2	2.4	23.57	1860		5.70	4.51	234	0.114	1.37
2	-0.91	1799	4.37	1619	2.1	32.8	.0224	76.1	35.9	0.1	2.4	25.23	1966		6.42	4.89	230	0.064	1.54
2	2.35	1650	3.75	1563	2.1	28.0	.0193	80.9	39.9	0.2	2.3	22.11	1786		5.07	4.10	202	0.010	1.17
2	5.96	1192	2.32	1323	1.8	18.9	.0123	92.4	52.7	0.2	2.5	16.82	1345		2.35	2.17	124	0.047	0.588
2	8.87	739	1.28	942	1.6	12.0	.0069	102	65.9	0.4	2.7	14.43	985		0.80	0.816	52.7	0.032	0.216
2	12.51	384	0.69	608	1.4	7.4	.0037	97.1	77.7	0.6	3.1	13.86	801		0.27	0.262	20.98	0.016	0.084
2	15.58	204	0.27	315	1.2	3.8	.0014	124	96.8	1.2	3.8	13.60	624		0.01	0.012	0.87	0.001	0.004

Table 11. Summary of Plume Measurements, J85-5, Run No. 7-3.

Run Date 3/1/74, Power Setting MID A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Emission Index				Total Press (Calc) psia	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	Fuel/Air Ratio	CO	HC	NO			Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-23.09	68.9	0.27	22.1	0	1.3	.0012	49.4	8.0	0	13.57	618	0	0	0	0
1	-19.55	163	0.64	29.0	0.9	4.1	.0031	49.2	4.4	0.4	13.64	783	0.12	0.006	0.528	0.005
1	-15.99	283	1.32	36.2	2.7	8.8	.0064	41.9	2.7	0.7	14.00	990	0.53	0.222	1.43	0.037
1	-12.41	392	2.27	36.0	6.6	15.9	.0110	33.8	1.6	1.0	14.82	1318	1.34	0.453	2.14	0.134
1	-8.83	493	3.99	29.4	15.2	27.0	.0192	24.3	0.8	1.3	17.04	1846	3.22	0.782	2.58	0.419
1	-5.25	511	5.78	20.1	23.3	38.5	.0275	17.5	0.4	1.4	20.90	2338	5.80	1.02	2.32	0.812
1	-1.72	485	7.94	16.2	35.0	51.9	.0373	12.1	0.2	1.6	25.07	2870	8.62	1.04	1.72	1.38
1	2.09	508	7.05	18.1	28.2	44.4	.0333	14.3	0.3	1.4	22.76	2656	7.26	1.04	2.18	1.02
1	5.63	507	4.50	28.5	16.2	29.7	.0216	22.2	0.7	1.2	17.40	1991	3.65	0.810	2.56	0.438
1	9.21	439	2.61	46.3	7.7	20.2	.0126	33.0	1.8	1.0	15.08	1429	1.62	0.535	2.92	0.162
1	12.80	313	1.42	38.6	2.8	10.4	.0069	42.9	2.7	0.6	13.95	1026	0.53	0.227	1.43	0.032
1	16.01	203	0.83	33.6	0.7	6.0	.0040	47.7	4.0	0.3	13.74	840	0.23	0.110	0.920	0.007
1	19.93	92.8	0.33	24.7	0	1.9	.0015	54.7	7.3	0	13.59	646	0.03	0.016	0.219	0
2	-20.34	122	0.40	26.4	0.5	2.5	.0019	58.2	6.3	0.4	13.57	683	0	0	0	0
2	-16.90	283	1.07	38.9	2.2	7.6	.0052	51.4	3.6	0.7	13.76	909	0.30	0.154	1.08	0.021
2	-13.10	452	2.18	44.0	5.3	15.2	.0106	40.4	2.0	0.8	14.54	1292	1.15	0.465	2.30	0.092
2	-9.46	682	4.10	36.2	15.5	28.4	.0200	32.6	0.9	1.3	16.93	1880	3.24	1.06	2.92	0.421
2	-6.18	694	5.88	22.7	24.4	40.0	.0280	23.3	0.4	1.4	20.82	2366	5.85	1.36	2.34	0.819
2	-1.87	585	8.05	16.4	37.3	54.2	.0379	14.4	0.2	1.6	24.76	2897	8.59	1.24	1.72	1.37
2	1.66	602	7.66	17.6	32.9	48.8	.0361	15.6	0.2	1.5	23.51	2803	7.91	1.23	1.58	1.19
2	5.23	660	4.98	27.7	17.9	32.8	.0239	26.1	0.6	1.2	18.27	2126	4.30	1.12	2.58	0.516
2	8.87	457	2.68	42.5	8.6	20.5	.0130	33.5	1.6	1.1	15.01	1450	1.61	0.539	2.58	0.177
2	12.88	288	1.18	39.3	2.8	9.8	.0057	47.6	3.3	0.8	13.86	941	0.40	0.190	1.32	0.032
2	16.14	137	0.52	29.2	0.7	3.7	.0025	51.2	5.5	0.4	13.57	737	0	0	0	0
2	19.76	43.2	0.16	18.8	0	0.9	.0007	53.1	11.6	0	13.57	570	0	0	0	0

Table 12. Summary of Plume Measurements, J85-5, Run No. 8.

Run Date 3-4-74, Power Setting MAX A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-16.70	262	1.33	11.4	9.3	12.2	.0064	38.4	0.8	2.3	3.0	14.05	13.67	975		0.507	0.195	0.406	0.117	0.132
1	-14.04	363	2.08	11.2	12.9	18.5	.0101	34.1	0.5	2.0	2.9	14.51		1241		1.05	0.358	0.525	0.201	0.305
1	-10.82	480	3.37	10.9	17.9	27.0	.0162	28.1	0.3	1.8	2.7	15.70		1648		2.24	0.629	0.672	0.403	0.605
1	-7.59	831	5.26	10.6	27.2	42.7	.0252	31.8	0.2	1.8	2.8	18.58		2190		4.59	1.46	0.918	0.826	1.29
1	-4.36	1526	7.84	10.4	46.0	65.3	.0373	38.1	0.1	2.0	2.9	22.91		2846		7.89	3.01	0.789	1.58	2.29
1	-1.24	2091	9.41	10.3	56.7	80.2	.0446	43.4	0.1	2.1	3.0	25.23		3207		9.73	4.22	0.973	2.04	2.92
1	2.26	1837	8.34	9.9	47.0	68.3	.0397	43.0	0.1	2.0	2.8	23.73		2965		8.52	3.66	0.852	1.70	2.39
1	5.45	1091	6.04	10.0	29.1	46.4	.0290	35.4	0.2	1.6	2.6	19.36		2400		5.37	1.90	1.07	0.859	1.40
1	8.68	644	3.53	10.4	16.0	28.4	.0171	35.7	0.3	1.5	2.7	16.01		1700		2.49	0.869	0.747	0.374	0.672
1	11.91	384	1.84	10.7	10.3	16.4	.0089	40.8	0.6	1.8	2.9	14.46		1160		0.931	0.380	0.559	0.168	0.270
1	15.13	227	0.95	10.9	5.70	9.90	.0046	46.6	1.1	2.0	3.4	13.84		862		0.257	0.120	0.283	0.051	0.087
2	-18.54	253	0.89	11.8	6.30	9.50	.0043	55.3	1.3	2.3	3.4	13.81		845		0.220	0.122	0.286	0.051	0.075
2	-14.92	412	1.87	11.3	11.7	18.4	.0091	43.1	0.6	2.1	3.2	14.49		1169		0.955	0.412	0.573	0.201	0.306
2	-11.28	730	3.79	10.4	18.2	30.1	.0183	37.7	0.3	1.6	2.7	16.30		1777		2.76	1.04	0.828	0.442	0.745
2	-7.64	1272	6.34	10.0	30.3	48.5	.0304	39.3	0.2	1.6	2.6	19.78		2477		5.73	2.25	1.15	0.917	1.49
2	-3.82	2049	8.90	9.8	53.4	75.4	.0423	44.9	0.1	2.1	3.0	24.34		3093		9.09	4.08	0.909	1.91	2.73
2	0.63	2343	9.50	9.7	58.5	84.2	.0451	48.1	0.1	2.2	3.1	25.12		3229		9.76	4.69	0.976	2.15	3.03
2	3.42	1683	7.15	9.7	39.3	60.1	.0343	45.9	0.1	1.9	2.9	20.92		2681		6.69	3.07	0.669	1.27	1.94
2	7.05	805	4.34	9.9	18.5	32.4	.0209	36.4	0.2	1.4	2.5	16.77		1936		3.26	1.19	0.652	0.456	0.815
2	10.89	427	2.21	10.6	11.6	18.5	.0107	37.8	0.5	1.7	2.7	14.49		1283		1.07	0.404	0.535	0.182	0.289
2	14.33	259	1.05	10.8	6.60	10.3	.0051	48.1	1.0	2.0	3.2	13.81		888		0.254	0.122	0.254	0.051	0.081
2	17.95	157	0.48	10.9	3.70	5.50	.0023	62.8	2.2	2.4	3.6	13.67		701		0	0	0	0	0

Table 13. Summary of Plume Measurements, J85-5, Run No. 9-1.

Run Date 3/4/74, Power Setting MIL, Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO <sub>x</sub> ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel				Fuel <sup>1</sup> (x 10 <sup>-3</sup> )	CO <sup>4</sup> (x 10 <sup>-4</sup> )	HC <sup>5</sup> (x 10 <sup>-6</sup> )	NO <sup>6</sup> (x 10 <sup>-5</sup> )
1	-26.18	49.4	.10	17.0	2.8	4.4	.0004	90.7	23.0	8.5	13.4	13.45	13.45	595	-	-	-	-
1	-20.30	83.6	.25	18.0	4.3	6.6	.0011	63.0	9.2	5.3	8.2	13.70	13.40	665	0.10	0.06	0.9	0.05
1	-15.18	121.3	.42	20.0	5.3	9.2	.0020	56.3	5.4	4.1	7.0	14.02	13.32	740	0.25	0.14	1.4	0.10
1	-10.57	154.7	.57	21.5	6.3	11.2	.0027	52.9	4.1	3.6	6.3	14.56	13.27	823	0.45	0.24	1.9	0.16
1	-7.51	181.3	.68	23.4	6.9	13.0	.0033	51.5	3.4	3.2	6.1	15.15	13.24	867	0.68	0.35	2.3	0.22
1	10.08	181.9	.68	22.8	7.0	12.9	.0033	51.7	3.3	3.3	6.1	15.26	13.24	869	0.70	0.36	2.3	0.23
1	12.64	154.7	.56	21.2	5.8	11.3	.0027	53.3	3.7	3.3	6.4	14.61	13.27	809	0.47	0.25	1.7	0.16
1	17.49	112.9	.33	19.4	4.8	8.4	.0016	62.1	5.4	4.4	7.6	14.00	13.32	724	0.20	0.12	1.1	0.09
1	22.38	73.9	.21	17.4	3.5	6.0	.0009	70.6	8.1	5.3	9.3	13.64	13.43	606	0.07	0.05	0.6	0.37
1	27.74	47.9	.09	16.4	2.5	4.1	.0003	100.0	17.1	8.6	14.0	13.47	13.45	580	0.01	0.01	0.2	0.01
1	33.46	24.4	.01	15.0	1.7	2.4	0	-	-	44.4	-	13.42	13.51	543	-	-	-	-
2	-30.38	23.5	.02	10.9	2.0	2.3	0	-	-	27.5	-	13.45	13.47	558	-	-	-	-
2	-24.78	52.5	.11	10.6	2.9	4.5	.0004	93.1	9.4	8.4	13.1	13.53	13.45	613	0.02	0.02	0.2	0.02
2	-19.56	88.9	.26	11.4	4.6	7.1	.0012	66.5	4.3	5.6	8.8	13.69	13.37	689	0.10	0.07	0.4	0.06
2	-14.16	141.0	.50	12.9	6.2	10.4	.0024	54.7	2.5	4.0	6.6	14.19	13.29	796	0.33	0.18	0.8	0.13
2	-9.28	198.9	.76	13.9	7.7	14.1	.0036	50.9	1.8	3.3	6.0	15.08	13.16	908	0.74	0.38	1.3	0.24
2	-3.99	228.5	.90	14.8	8.6	16.2	.0044	49.2	1.6	3.1	5.8	15.87	13.13	978	1.06	0.52	1.7	0.33
2	5.66	227.3	.89	14.5	8.5	16.1	.0043	49.5	1.6	3.1	5.8	15.82	13.13	956	1.04	0.51	1.7	0.32
2	10.52	204.7	.78	14.1	7.5	14.5	.0037	51.2	1.8	3.1	6.0	15.32	13.16	903	0.82	0.42	1.5	0.25
2	15.05	152.4	.52	12.9	5.9	11.2	.0025	56.2	2.4	3.6	6.8	14.48	13.21	796	0.42	0.24	1.0	0.15
2	20.22	92.3	.25	11.2	4.3	7.1	.0012	69.5	4.2	5.3	8.8	13.74	13.34	680	0.11	0.06	0.5	0.06
2	25.99	45.4	.07	9.7	2.2	4.0	.0002	121.5	13.0	9.7	17.4	13.48	13.45	582	0.01	0.01	0.1	0.02

NOTE: Radial position adjusted for symmetry.



Table 15. Summary of Plume Measurements, J85-5, Run No. 9-3, 10-1.

Run Date 3/8/74, Power Setting MID A/B, Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO <sub>2</sub> %	CO ppm	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel <sub>1</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
1	-37.19	51.6	0.14	12.8	4.6	5.5	.0006	69.2	8.6	10.2	12.2	13.45	13.45		586	-	-	-	-
1	-28.81	96.0	0.37	14.8	5.2	7.2	.0017	50.6	3.9	4.5	6.2	13.45	13.43		673	0.03	0.02	0.1	0.02
1	-20.41	168	0.90	16.2	6.9	10.9	.0043	36.6	1.8	2.5	4.0	13.64	13.38		860	0.28	0.10	0.5	0.07
1	-11.77	250	1.58	18.0	10.0	15.2	.0076	31.1	1.1	2.1	3.2	14.10	13.27		1120	0.89	0.28	1.0	0.19
1	-3.92	289	2.36	17.8	13.6	21.1	.0114	24.1	0.8	1.9	3.0	15.21	13.17		1377	1.93	0.47	1.5	0.37
1	8.86	292	2.39	17.2	13.9	21.5	.0115	24.1	0.7	1.9	3.0	15.56	13.14		1362	2.17	0.52	1.5	0.41
1	14.72	214	1.47	15.9	10.0	15.6	.0071	28.6	1.1	2.2	3.5	14.29	13.22		1083	0.93	0.27	1.0	0.20
1	22.88	132	0.74	14.2	7.2	10.5	.0035	35.1	1.9	3.2	4.6	13.58	13.35		791	0.22	0.08	0.4	0.07
1	31.25	65.2	0.29	11.5	5.1	6.6	.0013	43.2	3.8	5.6	7.3	13.42	13.45		608	-	-	-	-
1	39.75	20.2	0.04	10.4	4.2	4.5	.0001	101.7	26.2	34.3	37.2	13.36	13.45		531	-	-	-	-
1	47.85	7.2	0.03	10.0	3.8	4.1	.0000	45.3	31.8	39.8	42.9	13.36	13.48		511	-	-	-	-
2	-40.42	30.0	0.06	11.9	7.3	7.4	.0002	90.0	18.0	36.0	36.5	13.66	13.68		534	-	-	-	-
2	-31.88	102	0.33	15.5	8.4	9.4	.0015	59.7	4.6	8.1	9.1	13.61	13.63		639	-	-	-	-
2	-23.37	187	0.78	25.4	10.1	12.8	.0037	47.0	3.2	4.2	5.3	13.72	13.58		773	0.19	0.09	0.6	0.10
2	-15.02	310	1.48	25.9	13.2	18.8	.0072	40.8	1.7	2.9	4.1	14.50	13.42		1070	1.00	0.41	1.7	0.29
2	-7.62	389	2.45	24.7	18.4	25.5	.0118	31.2	1.0	2.5	3.4	16.00	13.29		1491	2.45	0.76	2.5	0.61
2	6.02	398	2.67	23.6	20.2	27.5	.0129	29.3	0.9	2.5	3.4	16.97	13.24		1592	3.18	0.93	2.9	0.80
2	12.54	354	1.94	26.7	15.0	22.1	.0094	35.8	1.4	2.5	3.8	15.53	13.37		1322	1.79	0.64	2.5	0.45
2	20.70	214	1.09	22.4	10.9	12.3	.0053	38.4	2.0	3.3	3.7	14.11	13.50		967	0.54	0.21	1.1	0.18
2	29.12	131	0.53	15.8	8.9	9.8	.0025	48.0	2.9	5.4	6.0	13.69	13.60		663	0.10	0.05	0.3	0.05
2	36.67	36.6	0.14	12.3	7.4	7.7	.0006	49.0	8.3	16.3	16.9	13.64	13.68		547	-	-	-	-
2	46.06	15.3	0.05	10.9	6.8	6.8	.0001	58.6	20.9	42.7	43.0	13.64	13.63		512	-	-	-	-

NOTE: Radial position adjusted for symmetry.

Table 16. Summary of Plume Measurements, J85-5, Run No. 10-2.

Run Date 3/11/74, Power Setting MAX A/B, Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO <sub>4</sub> (x 10 <sup>-3</sup> )	HC <sub>6</sub> (x 10 <sup>-3</sup> )	NO <sub>5</sub> (x 10 <sup>-3</sup> )	NO <sub>x 5</sub> (x 10 <sup>-3</sup> )
1	-41.98	19.2	0.10	0	2.1	2.2	.0004	36.5	0	6.7	6.9	13.61	13.74	537	495	-	-	-	-	-
1	-32.98	58.6	0.38	0	4.1	4.8	.0018	30.0	0	3.5	4.1	13.72	13.71	658	500	0.08	0.02	0	0.03	0.03
1	-23.96	113	0.96	0	7.5	10.1	.0046	23.2	0	2.6	3.5	13.83	13.58	868	543	0.27	0.06	0	0.07	0.09
1	-13.37	185	1.83	0	12.8	16.2	.0088	20.0	0	2.3	2.9	14.31	13.45	1158	706	0.84	0.17	0	0.19	0.24
1	-5.14	236	2.86	0	19.1	24.4	.0137	16.4	0	2.2	2.9	15.48	13.32	1493	961	1.90	0.31	0	0.42	0.55
1	7.38	252	3.12	0	20.4	26.8	.0150	16.0	0	2.2	2.9	16.10	13.35	1575	1352	2.32	0.37	0	0.51	0.67
1	13.31	209	2.11	0	14.3	18.5	.0101	19.6	0	2.3	2.9	14.75	13.40	1253	1307	1.20	0.24	0	0.28	0.35
1	22.27	125	1.11	0	7.5	10.9	.0053	22.3	0	2.2	3.2	13.85	13.56	909	894	0.33	0.07	0	0.07	0.11
1	31.19	67.6	0.45	0	4.3	5.9	.0021	28.7	0	3.1	4.3	13.72	13.69	690	669	0.09	0.03	0	0.03	0.04
1	40.41	18.6	0.08	0	1.7	2.0	.0002	47.1	0	6.9	8.3	13.64	13.71	528	531	-	-	-	-	-
1	49.05	4.5	0.00	0	0.8	0.9	-	-	-	-	-	13.64	13.74	499	481	-	-	-	-	-
2	-43.12	12.2	0.03	0	1.4	1.5	-	-	-	-	-	13.66	13.68	510	539	-	-	-	-	-
2	-34.16	44.4	0.21	0	3.4	3.2	.0009	41.5	0	5.3	5.0	13.89	13.63	580	641	0.03	0.01	0	0.02	0.02
2	-25.29	134	0.84	0	6.7	9.0	.0040	31.1	0	2.6	3.5	13.82	13.55	836	865	0.24	0.07	0	0.06	0.08
2	-16.46	234	2.05	0	14.3	18.2	.0098	22.6	0	2.3	2.9	14.48	13.42	1232	1332	1.02	0.23	0	0.23	0.30
2	-8.01	291	3.59	0	22.8	30.8	.0172	16.0	0	2.1	2.9	16.08	13.26	1716	1886	2.54	0.41	0	0.53	0.74
2	4.19	306	4.04	0	24.6	34.6	.0193	15.0	0	2.1	2.9	17.03	13.24	1848	-	3.21	0.48	0	0.67	0.93
2	11.63	271	2.75	0	17.2	23.4	.0132	19.5	0	2.1	2.9	15.32	13.29	1459	-	1.77	0.35	0	0.37	0.51
2	20.35	192	1.32	0	10.0	12.5	.0064	28.5	0	2.5	3.1	14.11	13.47	978	-	0.56	0.16	0	0.14	0.17
2	29.31	95.9	0.55	0	4.7	6.3	.0026	34.4	0	2.8	3.7	13.72	13.60	738	-	0.11	0.04	0	0.03	0.09
2	37.89	26.0	0.10	0	2.1	2.4	.0003	51.9	0	7.0	7.9	13.61	13.66	535	-	-	-	-	-	-
2	46.62	7.1	0.02	0	1.3	1.0	-	-	-	-	-	13.66	13.68	506	-	-	-	-	-	-

NOTE: Radial position adjusted for symmetry  
Thermocouple #2 out after -8.01 position.

Table 17. Summary of Plume Measurements, J85-5, Run No. 11-1.

Run Date 3/12/74, Power Setting MIL, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>				Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-58.36	14.3	0.01	0	2.1	2.4	0	-	0	-	-	13.58	13.56	502	-	-	-	-	-
1	-47.86	21.3	0.03	0	2.1	2.4	0	-	0	-	-	13.61	13.53	506	-	-	-	-	-
1	-37.87	33.7	0.08	0	2.7	3.7	.0003	79.9	0	10.7	14.3	13.66	13.51	527	0.01	0.01	0	0.01	0.01
1	-27.05	53.8	0.16	0	3.6	4.8	.0007	85.0	0	7.2	9.5	13.83	13.51	557	0.05	0.03	0	0.04	0.05
1	-17.04	63.3	0.20	0	3.8	5.2	.0009	62.0	0	6.1	8.5	13.91	13.51	573	0.08	0.05	0	0.05	0.07
1	-3.98	66.2	0.22	0	3.9	5.7	.0009	58.4	0	5.8	8.3	13.83	13.48	580	0.08	0.05	0	0.05	0.08
1	7.47	68.7	0.23	0	3.9	6.1	.0010	58.7	0	5.8	8.6	14.04	13.48	585	0.11	0.06	0	0.06	0.09
1	17.34	65.7	0.22	0	3.8	5.7	.0009	58.8	0	5.7	8.3	13.99	13.48	581	0.10	0.06	0	0.06	0.09
1	27.79	55.3	0.15	0	3.2	4.7	.0006	71.8	0	6.9	10.0	13.80	13.45	553	0.04	0.03	0	0.03	0.04
1	38.32	38.7	0.08	0	2.9	3.7	.0003	90.2	0	10.9	14.3	13.66	13.51	528	0.01	0.01	0	0.01	0.01
1	49.08	34.2	0.06	0	2.4	3.2	.0002	110.9	0	12.8	17.3	13.64	13.51	519	0.00	0	0	0	0
2	-48.86	26.5	0.03	0	2.4	3.0	0	149.3	0	22.7	27.6	13.66	13.63	509	0.00	0	0	0	0
2	-37.90	38.1	0.08	0	3.0	3.7	.0002	95.2	0	12.3	15.4	13.72	13.60	526	0.01	0.01	0	0.01	0.02
2	-26.93	57.1	0.14	0	3.5	5.0	.0006	75.9	0	7.6	10.9	13.77	13.55	552	0.04	0.03	0	0.03	0.04
2	-16.10	73.6	0.22	0	4.1	6.2	.0010	64.2	0	5.9	8.9	14.03	13.55	583	0.10	0.06	0	0.06	0.09
2	-6.03	81.6	0.26	0	4.4	6.8	.0011	61.8	0	5.4	8.3	14.19	13.50	597	0.14	0.09	0	0.08	0.12
2	9.22	79.6	0.25	0	4.3	6.9	.0011	61.9	0	5.5	8.9	14.22	13.50	594	0.14	0.09	0	0.08	0.12
2	19.37	65.8	0.19	0	3.9	5.9	.0008	67.9	0	6.6	10.0	13.98	13.55	569	0.08	0.05	0	0.05	0.08
2	30.29	51.9	0.13	0	3.4	5.1	.0005	75.6	0	8.3	12.2	13.82	13.58	547	0.04	0.03	0	0.03	0.05
2	41.33	34.9	0.06	0	2.8	3.9	.0002	108.0	0	14.1	19.9	13.68	13.60	521	0.01	0.01	0	0.01	0.02
2	52.34	21.7	0.02	0	2.2	2.9	0	-	-	-	-	13.64	13.63	504	-	-	-	-	-
2	63.26	11.1	0	0	1.6	1.8	0	-	-	-	-	13.61	13.68	497	-	-	-	-	-

NOTES: Radial position adjusted for symmetry. Thermocouple #2 is out.

Table 18. Summary of Plume Measurements, J85-5, Run No. 11-2.

Run Date 3/12/74, Power Setting MIN A.B, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition						Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>						CO <sub>4</sub> (x 10 <sup>-3</sup> )	HC <sub>6</sub> (x 10 <sup>-3</sup> )	NO <sub>5</sub> (x 10 <sup>-3</sup> )	NO <sub>5</sub> (x 10 <sup>-3</sup> )
1	-62.78	60.7	0.01	74.4	1.8	2.4		-	-	-	-	-	13.61	13.61	510	551	-	-	-	-	-
1	-49.49	118	0.07	119	2.0	3.4		.0003	241	122	6.7	11.4	13.61	13.58	534	591	-	-	-	-	-
1	-36.93	171	0.15	189	2.4	4.2		.0008	186	103	3.9	7.5	13.72	13.58	563	634	0.04	0.07	4.1	0.02	0.03
1	-23.70	252	0.28	256	2.3	5.7		.0015	132	77.5	2.3	5.7	13.88	13.56	617	691	0.12	0.18	9.3	0.03	0.07
1	-11.85	294	0.36	323	2.3	6.3		.0019	140	77.4	1.8	5.0	14.04	13.48	655	731	0.19	0.27	14.7	0.03	0.10
1	11.34	306	0.37	333	2.3	6.7		.0020	141	76.9	1.8	5.0	14.18	13.51	661	737	0.23	0.32	17.7	0.04	0.12
1	20.52	255	0.28	279	2.1	5.9		.0015	153	84.2	2.1	5.8	13.96	13.53	617	700	0.14	0.21	11.8	0.03	0.08
1	33.00	197	0.21	223	2.1	4.4		.0011	159	90.4	2.8	5.9	13.80	13.56	586	656	0.07	0.11	6.3	0.02	0.04
1	46.42	160	0.14	170	2.0	4.1		.0007	184	98.2	3.8	7.8	13.69	13.61	560	623	0.03	0.06	3.0	0.01	0.02
1	59.86	87.2	0.03	85.0	1.9	2.7		.0001	368	180	12.8	19.0	13.61	13.61	517	569	-	-	-	-	-
1	72.43	43.5	0	33.6	1.6	2.3		-	-	-	-	-	13.64	13.61	504	538	-	-	-	-	-
2	-61.36	37.2	0	33.3	1.9	2.0		-	-	-	-	-	13.64	13.66	504	-	-	-	-	-	-
2	-47.29	77.8	0.02	93.2	2.1	2.7		.0000	406	244	18.3	23.2	13.66	13.66	513	-	0.00	0	0	0	0
2	-32.97	158	0.13	169	2.4	4.2		.0007	190	102	4.8	8.2	13.77	13.55	558	-	0.04	0.08	4.1	0.02	0.03
2	-18.75	273	0.28	263	2.6	6.1		.0015	163	78.8	2.5	6.0	13.95	13.55	618	-	0.14	0.23	11.0	0.04	0.08
2	-5.92	342	0.43	364	2.7	7.1		.0023	136	72.9	1.8	4.7	14.22	13.52	691	-	0.27	0.37	19.7	0.05	0.13
2	12.24	314	0.39	315	2.6	6.8		.0021	138	69.8	1.9	4.9	14.22	13.55	670	-	0.25	0.35	17.5	0.05	0.12
2	26.37	222	0.22	238	2.3	5.6		.0012	165	88.8	2.8	6.9	13.93	13.52	592	-	0.11	0.18	9.8	0.03	0.08
2	40.47	133	0.09	127	2.1	3.6		.0004	231	111	5.9	10.4	13.66	13.58	540	-	0.02	0.05	2.2	0.01	0.02
2	54.89	56.6	0.01	28.9	1.8	2.1		-	-	-	-	-	13.58	13.63	507	-	-	-	-	-	-
2	68.62	9.0	0	3.7	1.3	1.4		-	-	-	-	-	13.61	13.66	503	-	-	-	-	-	-
2	82.84	3.3	0	0	1.2	1.3		-	-	-	-	-	13.61	13.63	503	-	-	-	-	-	-

NOTES: Radial position adjusted for symmetry.  
Thermocouple #2 is out.

Table 19. Summary of Plume Measurements, J85-5, Run No. 11-3, 12-1.

3/12/74  
Run Date 3/13/74, Power Setting MID A/B, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )	NO <sub>x</sub> 6 (x 10 <sup>-5</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel				Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-5</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )			
1	-72.60	11.0	0	0	1.6	1.7	-	-	-	-	-	13.61	508	529	-	-	-	-	-	-	-
1	-59.47	28.4	0.02	0	2.3	2.5	-	-	-	-	-	13.61	516	527	-	-	-	-	-	-	-
1	-46.73	60.8	0.15	0	3.0	4.2	.0006	78.4	0	6.3	8.9	13.69	564	525	0.03	0.24	0	0.02	0.02	0.03	0.03
1	-32.79	86.2	0.34	0	3.6	6.2	.0015	49.7	0	3.5	5.9	13.80	647	543	0.10	0.50	0	0.04	0.04	0.06	0.06
1	-19.49	106.1	0.41	0	4.1	7.0	.0019	50.3	0	3.2	5.5	13.99	682	798	0.18	0.91	0	0.06	0.10	0.10	0.10
1	-1.75	128.1	0.53	0	4.7	8.0	.0025	47.2	0	2.9	4.8	14.12	738	843	0.26	1.23	0	0.08	0.12	0.12	0.12
1	11.20	130.8	0.55	0	4.4	8.2	.0026	46.5	0	2.6	4.8	14.07	746	839	0.26	1.21	0	0.07	0.12	0.12	0.12
1	22.04	113.2	0.44	0	4.0	7.2	.0021	49.8	0	2.9	5.2	13.91	698	782	0.17	0.85	0	0.05	0.05	0.05	0.05
1	35.43	84.8	0.29	0	3.3	5.4	.0013	56.7	0	3.6	6.0	13.77	624	713	0.08	0.45	0	0.03	0.03	0.03	0.03
1	48.91	58.1	0.16	0	2.7	4.4	.0007	68.6	0	5.3	8.6	13.69	570	665	0.03	0.21	0	0.02	0.02	0.03	0.03
1	61.84	42.8	0.08	0	2.3	3.2	.0003	106.0	0	9.2	13.1	13.66	537	613	0.01	0.11	0	0.01	0.01	0.01	0.01
1	74.76	17.2	0	0	1.9	2.0	-	-	-	-	-	13.64	508	569	-	-	-	-	-	-	-
2	-70.21	50.9	0.07	11.2	3.4	3.3	.0002	136	15.0	14.8	14.5	13.64	539	-	0.01	0.14	0.2	0.01	0.01	0.01	0.01
2	-55.78	72.0	0.16	12.4	4.1	4.1	.0007	86.2	7.5	8.1	8.0	13.64	573	-	0.02	0.17	0.2	0.02	0.02	0.02	0.02
2	-41.26	112	0.44	13.9	5.3	6.0	.0020	49.9	3.1	3.9	4.4	13.72	699	-	0.10	0.50	0.3	0.04	0.04	0.04	0.04
2	-26.68	175	0.75	15.3	6.7	8.7	.0036	45.2	2.0	2.9	3.7	13.85	820	-	0.25	1.13	0.5	0.07	0.07	0.09	0.09
2	-12.54	227	1.04	16.2	7.6	11.0	.0050	42.5	1.5	2.4	3.4	14.22	899	-	0.52	2.21	0.8	0.12	0.12	0.18	0.18
2	6.83	228	1.12	16.3	7.9	11.5	.0054	39.7	1.4	2.3	3.3	14.37	924	-	0.62	2.46	0.9	0.14	0.14	0.20	0.20
2	19.68	190	0.87	15.7	6.7	9.8	.0042	42.8	1.8	2.5	3.7	13.98	853	-	0.35	1.50	0.6	0.09	0.09	0.13	0.13
2	33.82	140	0.60	14.1	5.6	7.7	.0029	45.2	2.3	3.0	4.1	13.74	769	-	0.14	0.63	0.3	0.04	0.04	0.06	0.06
2	48.59	88.9	0.37	13.5	4.9	5.8	.0017	46.6	3.6	4.3	5.1	13.66	667	-	0.06	0.28	0.2	0.03	0.03	0.03	0.03
2	63.04	58.0	0.13	13.0	3.6	4.1	.0005	81.9	9.2	8.5	9.6	13.61	563	-	0.00	0	0	0	0	0	0
2	77.28	47.7	0.10	13.0	3.7	4.1	.0004	92.1	12.6	11.8	13.1	13.61	548	-	0.00	0	0	0	0	0	0

NOTES: Radial position adjusted for symmetry.  
Thermocouple #2 is out.

Table 20. Summary of Plume Measurements, J85-5, Run No. 12-2.

Run Date 3/13/74, Power Setting MAX A/B, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				NO <sub>x,5</sub> (x 10 <sup>-5</sup> )
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	Fuel (x 10 <sup>-3</sup> )					CO (x 10 <sup>-5</sup> )	HC (x 10 <sup>-5</sup> )	NO (x 10 <sup>-5</sup> )		
1	-67.15	60.9	0.24	14.5	5.3	5.3	.0011	49.4	5.9	7.0	7.1	13.61	13.35	608	641	0.01	0.05	0.1	0.01	0.01
1	-54.03	71.1	0.35	14.6	6.0	6.3	.0016	39.2	4.1	5.5	5.7	13.58	13.32	661	693	0	0	0	0	0
1	-40.22	103	0.61	14.5	7.3	8.2	.0029	32.8	2.3	3.9	4.4	13.66	13.30	773	784	0.10	0.39	0.4	0.06	0.06
1	-26.91	134	0.88	14.2	9.2	10.3	.0042	30.1	1.6	3.4	3.9	13.85	13.24	856	903	0.29	0.87	0.5	0.10	0.11
1	-13.62	153	1.11	14.3	10.1	12.2	.0053	27.1	1.3	3.0	3.6	14.02	13.27	920	965	0.45	1.22	0.6	0.14	0.16
1	6.32	159	1.15	14.2	10.6	12.8	.0055	27.4	1.2	3.0	3.7	14.15	13.27	932	998	0.53	1.45	0.6	0.16	0.20
1	16.36	142	1.01	14.4	9.7	11.9	.0049	27.6	1.4	3.1	3.8	13.99	13.27	893	950	0.40	1.10	0.6	0.12	0.15
1	29.92	142	0.95	14.3	8.2	11.3	.0045	29.3	1.5	2.8	3.9	13.80	13.22	876	867	0.27	0.79	0.4	0.08	0.11
1	43.52	93.4	0.50	14.4	6.5	7.3	.0023	36.5	2.8	4.2	4.7	13.66	13.32	731	735	0.09	0.33	0.3	0.04	0.04
1	56.88	83.9	0.43	14.5	6.4	7.1	.0020	38.2	3.3	4.8	5.4	13.61	13.24	697	715	0.02	0.08	0.1	0.01	0.11
1	70.80	43.8	0.08	14.7	4.0	3.6	.0003	99.4	16.8	15.1	13.6	13.58	13.40	545	586	-	-	-	-	-
1	83.40	43.4	0.12	14.6	4.2	4.7	.0005	67.2	11.3	10.7	12.0	13.58	13.32	561	595	-	-	-	-	-
2	-67.16	41.0	0.08	14.5	4.0	4.2	.0003	96.1	17.1	15.3	16.4	13.61	13.63	544	-	0.00	0	0	0	0
2	-52.50	74.4	0.28	14.5	5.3	6.0	.0013	51.0	5.0	6.0	6.8	13.64	13.58	627	-	0.04	0.20	0.2	0.02	0.03
2	-37.62	108	0.53	14.5	7.2	8.6	.0025	39.8	2.7	4.4	5.3	13.72	13.55	742	-	0.12	0.48	0.3	0.03	0.06
2	-22.59	148	0.89	14.5	9.9	11.5	.0043	32.4	1.6	3.6	4.2	13.95	13.52	862	-	0.34	1.10	0.5	0.12	0.14
2	-7.51	177	1.17	14.1	11.1	14.7	.0056	29.7	1.2	3.1	4.1	14.29	13.47	940	-	0.61	1.81	0.7	0.19	0.25
2	8.23	175	1.21	13.6	11.2	14.6	.0058	28.4	1.1	3.0	4.0	14.32	13.47	953	-	0.63	1.79	0.7	0.19	0.25
2	23.32	139	0.86	13.0	9.3	11.0	.0041	31.6	1.5	3.5	4.2	13.90	13.52	852	-	0.30	0.95	0.5	0.11	0.13
2	38.26	95.4	0.53	12.7	6.7	8.5	.0025	35.4	2.4	4.1	5.2	13.66	13.55	742	-	0.09	0.32	0.2	0.37	2.47
2	53.23	48.0	0.11	13.0	4.2	4.7	.0004	82.7	11.2	12.1	13.3	13.58	13.60	556	-	0	0	0	0	0
2	68.01	26.6	0.03	13.1	3.3	3.2	0	-	-	-	-	13.61	13.60	526	-	0.00	0	0	0	0
2	82.54	24.5	0.03	13.3	3.0	3.1	0	-	-	-	-	13.61	13.66	526	-	0.00	0	0	0	0

NOTES: Radial position adjusted for symmetry.  
Thermocouple #2 is out.

NOTES: Radial position adjusted for symmetry.  
Thermocouple #2 is out.

Table 21. Summary of Plume Measurements, J79-15, Run No. 24-1.

Run Date 4/4/74, Power Setting MIL, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	Fuel/Air Ratio	CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel				Fuel <sub>13</sub> (x 10 <sup>-3</sup> )	CO <sub>4</sub> (x 10 <sup>-3</sup> )	HC <sub>6</sub> (x 10 <sup>-6</sup> )	NO <sub>5</sub> (x 10 <sup>-5</sup> )	NO <sub>x5</sub> (x 10 <sup>-5</sup> )
1	-11.43	11.6	1.20	0	40.2	43.9	.0057	1.9	0	11.2	12.2	15.34	949	.94	.02	0	1.05	1.15
1	-9.27	28.4	2.91	0	89.6	98.3	.0138	2.0	0	10.4	11.4	26.31	1523	4.79	.10	0	4.98	5.46
1	-6.38	36.2	3.55	0	109	122	.0168	2.0	0	10.4	11.6	31.36	1718	6.39	.13	0	6.65	7.41
1	-3.87	36.9	3.44	0	104	114	.0163	2.1	0	10.3	11.3	32.03	1685	6.37	.13	0	6.56	7.20
1	-1.39	39.6	3.39	2.0	101	113	.0161	2.3	10	10.1	11.2	30.33	1673	6.04	.14	6	6.10	6.76
1	1.01	40.7	3.36	0	98.1	111	.0160	2.4	0	9.9	11.2	31.41	1663	6.18	.15	0	6.12	6.92
1	3.80	38.8	3.39	0	101	113	.0161	2.3	0	10.1	11.3	31.92	1671	6.30	.14	0	6.36	7.18
1	6.32	40.0	3.51	0	107	118	.0167	2.3	0	10.3	11.4	32.23	1708	6.50	.15	0	6.70	7.41
1	8.84	40.7	3.48	0	108	119	.0166	2.3	0	10.3	11.5	31.20	1700	6.29	.14	0	6.48	7.23
1	11.36	23.5	1.96	0	61.6	69.1	.0093	2.4	0	10.5	11.8	19.20	1217	2.46	.06	0	2.58	2.90
1	12.44	13.1	1.04	0	35.9	40.1	.0049	2.5	0	11.4	12.7	15.18	902	.799	.02	0	.91	1.01
2	11.43	15.3	1.27	0	43.8	49.1	.0060	2.4	0	11.5	12.9	15.99	972	1.16	.03	0	1.33	1.50
2	8.75	32.8	2.80	0	90.9	101	.0133	2.3	0	10.9	12.1	32.96	1490	5.70	.13	0	6.21	6.90
2	7.42	41.4	3.39	0	106	120	.0161	2.4	0	10.6	12.0	33.11	1671	6.49	.16	0	6.88	7.79
2	5.22	40.1	3.30	0	103	117	.0157	2.4	0	10.6	12.0	33.42	1644	6.43	.15	0	6.82	7.72
2	3.21	38.4	3.18	0	102	113	.0151	2.4	0	10.8	12.0	33.68	1609	6.32	.15	0	6.83	7.58
2	0.67	40.5	3.18	0	99.4	112	.0151	2.5	0	10.6	11.9	33.53	1607	6.29	.16	0	6.67	7.49
2	-1.42	42.7	3.24	0	101	112	.0154	2.6	0	10.5	11.7	33.53	1626	6.37	.17	0	6.69	7.45
2	-4.54	41.4	3.24	0	104	117	.0154	2.5	0	10.8	12.2	33.48	1628	6.37	.16	0	6.88	7.77
2	-6.02	37.9	3.26	0	108	119	.0155	2.3	0	11.2	12.3	33.11	1634	6.34	.15	0	7.10	7.80
2	-8.23	38.3	3.05	0	98.1	111	.0145	2.5	0	10.8	12.3	31.30	1570	5.79	.14	0	6.25	7.12
2	-10.97	22.5	1.75	0	63.0	70.4	.0083	2.6	0	12.0	13.4	18.84	1149	2.20	.06	0	2.64	2.95
2	-12.42	12.9	0.82	0	31.3	34.1	.0053	3.1	0	12.5	13.6	14.95	842	.599	.02	0	.75	.81

Table 22. Summary of Plume Measurements, J79-15, Run No. 24-2.

Run Date 4/4/74, Power Setting MIN A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO <sub>4</sub> (x 10 <sup>-3</sup> )	HC <sub>4</sub> (x 10 <sup>-3</sup> )	NO <sub>4</sub> (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-13.59	59.2	0.76	56.4	22.7	27.7	.0036	15.2	7.3	9.7	11.8	14.46	13.68	824		.447	.07	.03	.43	.53
1	-10.71	228	2.57	207	59.6	81.2	.0124	17.4	8.1	7.7	10.4	22.50		1414		3.78	.66	.31	2.91	3.93
1	-7.66	911	4.90	535	73.8	119	.0238	36.1	11.1	5.0	8.1	32.28		2107		8.22	2.97	.91	4.11	6.66
1	-4.94	1211	8.48	126	102	134	.0401	28.1	1.6	4.2	5.5	32.34		3002		11.29	3.18	.18	4.75	6.22
1	-2.08	2367	8.13	1488	50.2	114	.0397	55.4	18.9	2.1	4.8	31.92		2927		11.22	2.12	2.12	2.35	5.38
1	1.01	4334	6.13	7062	7.3	78.9	.0343	118	103	0.3	3.8	30.89		2450		10.42	12.27	10.71	.31	3.95
1	3.80	2693	7.95	2667	38.4	104	.0394	63.8	26.4	1.6	4.4	31.46		2887		11.07	7.08	2.93	1.78	4.88
1	6.68	794	8.39	64.9	98.5	127	.0395	18.7	0.8	4.1	5.3	31.87		2978		11.04	2.06	.09	4.51	5.83
1	9.56	615	4.90	271	72.7	113	.0236	24.6	5.7	5.0	7.8	32.03		2106		8.09	1.99	.46	4.05	6.31
1	12.44	285	2.69	184	48.5	75.4	.0130	20.8	6.9	5.9	9.3	21.52		1455		3.69	.77	.26	2.18	3.43
1	14.60	115	1.05	64.5	22.9	34.9	.0050	21.5	6.1	7.1	10.8	14.82		905		.716	.15	.04	.51	.77
2	13.73	210	1.68	96.4	34.9	54.5	.0081	24.5	5.7	6.8	10.6	16.87		1122		1.71	.42	.10	1.16	1.81
2	9.97	454	3.53	238	68.3	107	.0171	25.2	6.8	6.4	10.1	30.05		1713		6.24	1.57	.42	3.99	6.30
2	8.18	728	5.32	172	81.8	125	.0255	26.9	3.4	5.2	8.0	31.92		2219		8.47	2.28	.29	4.40	6.78
2	5.62	1289	8.30	302	90.5	127	.0395	30.4	3.9	3.8	5.3	31.76		2962		11.03	3.34	.43	4.18	5.83
2	3.41	4061	7.11	3607	17.6	92.9	.0370	103	49.0	0.8	4.1	31.14		2697		10.70	11.02	5.24	.86	4.39
2	1.04	4300	5.68	8028	4.9	75.2	.0327	123	122	0.2	3.7	31.09		2333		10.25	12.67	12.57	.21	3.81
2	-1.79	3037	7.47	2271	35.8	103	.0375	75.6	30.5	1.6	4.5	31.45		2777		10.77	8.16	3.29	1.73	4.86
2	-5.29	1098	8.75	147	106	139	.0413	24.7	1.8	4.3	5.6	31.92		3061		11.36	2.82	.21	4.90	6.38
2	-7.49	1098	6.99	172	95.2	136	.0334	30.8	2.6	4.7	6.7	32.18		2649		10.06	3.11	.47	4.75	6.77
2	-9.88	1110	4.89	410	72.3	119	.0239	43.9	8.5	4.9	8.1	31.92		2109		8.14	3.57	.69	3.99	6.59
2	-12.8	298	1.80	110	31.9	53.2	.0088	32.3	6.1	5.8	9.6	16.77		1166		1.78	0.57	0.11	1.03	1.71

Table 23. Summary of Plume Measurements, J79-15, Run No. 25-1.

Run Date 4/4/74, Power Setting MIN A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel					Fuel <sub>13</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-3</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-3</sup> )
1	-14.47	955	1.07	1928	4.4	24.4	.0064	141	144	1.1	6.0	14.51	13.60	908	.812	1.14	1.17	.09	.49
1	-11.60	2237	3.88	4613	7.0	63.8	.0217	97.6	105	0.5	4.8	22.14		1820	5.64	5.50	.59	.28	.27
1	-8.73	2745	8.24	998	60.3	118	.0402	63.6	12.6	2.5	4.9	31.98		2954	11.31	7.19	1.43	2.83	5.54
1	-5.86	4866	11.2	15.2	129	160	.0537	83.3	0.1	4.1	5.0	32.28		3609	13.50	11.25	.01	5.54	6.75
1	-2.99	5280	11.3	61.8	133	167	.0543	89.4	0.6	4.1	5.2	31.20		3632	13.24	11.84	.08	5.43	6.88
1	-0.50	5035	8.64	1674	43.0	112	.0434	108	19.6	1.6	4.3	30.43		3063	11.45	12.37	2.24	1.83	4.92
1	3.22	4594	8.81	1471	45.9	113	.0438	97.3	17.0	1.7	4.3	30.89		3098	11.65	11.34	1.98	1.98	5.01
1	5.73	2497	11.1	21.5	127	156	.0520	42.4	0.2	4.1	5.0	32.13		3555	13.15	5.38	.03	5.38	6.58
1	8.61	3034	9.81	212	104	138	.0469	59.7	2.3	3.7	4.9	32.28		3310	12.45	7.43	.29	4.61	6.10
1	11.48	2426	5.43	4734	9.8	83.4	.0291	78.6	81.0	0.5	4.7	29.55		2247	8.95	7.03	7.25	.05	4.21
1	14.35	1286	1.96	2740	4.3	36.9	.0113	108	118	0.6	5.2	15.85		1222	1.91	2.06	2.25	.11	.99
2	16.13	1056	1.69	1042	4.6	34.9	.0090	111	55.8	0.8	6.1	15.27		1126	1.38	1.53	.77	.01	.84
2	13.19	1971	5.77	1148	32.9	95.9	.0287	64.6	19.9	1.9	5.5	27.61		2342	8.15	5.26	1.62	1.55	4.48
2	10.25	1292	9.46	28.9	113	140	.0445	26.9	0.3	4.2	5.2	32.18		3218	11.98	3.22	.04	5.03	6.23
2	7.30	2949	11.0	24.5	136	165	.0520	52.2	0.2	4.4	5.3	31.97		3556	13.11	6.84	.03	5.77	6.95
2	4.34	4781	8.81	1283	51.2	117	.0438	101	14.9	1.9	4.4	30.67		3101	11.57	11.69	1.72	2.20	5.09
2	1.40	5968	6.92	5188	9.7	83.7	.0378	148	69.1	0.4	3.7	30.05		2656	10.70	15.84	7.39	.04	3.96
2	-1.60	4645	8.64	1331	47.4	114	.0430	100	15.7	1.8	4.4	30.78		3060	11.48	11.48	1.80	2.07	5.05
2	-4.55	5324	11.3	35.3	143	174	.0544	89.9	0.3	4.4	5.4	31.71		3636	13.42	12.07	.04	5.90	7.25
2	-7.50	2389	10.1	20.0	118	151	.0479	46.0	0.2	4.1	5.3	32.08		3370	12.51	5.75	.03	5.13	6.63
2	-10.45	1846	8.09	965	58.5	117	.0391	44.0	12.5	2.5	4.9	31.04		2910	10.83	4.77	1.35	2.71	5.31
2	-13.40	1286	1.95	1500	3.6	33.7	.0106	115	68.7	0.5	5.1	15.32		1216	1.58	1.82	1.09	.08	.81

Table 24. Summary of Plume Measurements, J79-15, Run No. 25-2.

Run Date 4/8/74, Power Setting MAX A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-3</sup> )	HC (x 10 <sup>-5</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-14.63	1286	3.19	23	34	55	.0158	77.3	0.7	3.5	5.6	15.85	13.590	1624		2.31	0.18	0.16	0.81	1.29
1	-11.60	3325	8.35	2	83	116	.0405	80.9	0.0	3.4	4.8	25.85		2998		9.40	0.76	0	3.20	4.51
1	-8.90	4967	11.27	0	125	159	.0541	84.3	0.0	3.9	4.9	31.20		3639		13.18	1.11	0	5.14	6.46
1	-6.02	10472	11.92	1	138	171	.0595	161.2	0.0	3.9	4.9	30.17		3809		13.65	2.20	0	5.32	6.69
1	-2.99	5188	10.62	167	110	152	.0515	92.8	1.7	3.6	5.0	30.43		3506		12.55	1.16	2.13	4.52	6.28
1	-0.55	5832	7.77	2943	20	97	.0405	134	36.8	0.8	4.0	28.42		2877		10.45	1.40	38.5	0.84	4.18
1	2.69	5086	8.38	1900	33	106	.0424	112	22.8	1.3	4.2	30.07		3013		11.17	1.25	25.5	1.45	4.69
1	5.55	1849	11.26	21	122	156	.0540	82.4	0.2	3.8	4.9	31.51		3634		13.27	1.09	0.27	5.04	6.50
1	8.61	6545	11.47	3	125	158	.0557	108	0.0	3.8	4.8	31.46		3691		13.53	1.46	0	5.14	6.49
1	11.48	1975	9.13	30	89	119	.0434	42.2	0.4	3.4	4.6	29.81		3161		11.07	0.47	0.44	3.76	5.31
1	14.35	1531	3.20	496	8	45	.0162	90.8	15.0	0.8	4.4	16.16		1631		2.52	0.23	3.78	0.20	1.11
2	16.13	1523	4.49	51	40	68	.0220	65.5	1.1	3.0	5.0	16.77		2005		3.39	0.22	0.37	1.02	1.70
2	13.19	4866	11.04	0	114	147	.0531	84.3	0.0	3.6	4.7	28.34		3590		12.01	1.01	0	4.32	5.64
2	10.25	6647	12.94	0	142	171	.0621	97.5	0.0	3.9	4.7	30.78		3980		14.14	1.38	0	5.51	6.85
2	7.30	6273	12.83	0	145	174	.0615	93.1	0.0	4.0	4.8	30.99		3954		14.13	1.32	0	5.51	6.78
2	4.34	4798	10.07	878	64	124	.0492	90.0	9.1	2.2	4.2	29.74		3384		12.02	1.08	10.9	2.64	5.05
2	1.40	6240	7.58	7026	6	84	.0418	138.9	84.8	0.2	3.3	28.81		2822		11.02	1.53	93.4	0.22	3.64
2	-1.60	5137	9.05	1963	34	110	.0454	104.9	22.0	1.3	4.0	29.58		3163		11.48	1.20	25.3	1.49	4.59
2	-4.55	5832	12.19	41	139	173	.0585	91.2	0.4	4.0	5.0	30.73		3826		13.63	1.24	0.55	5.45	6.82
2	-7.50	8955	12.66	0	149	179	.0620	132.4	0.0	4.1	4.9	30.83		3842		14.20	1.88	0	5.82	6.96
2	-10.45	11457	12.50	7	151	178	.0624	167.7	0.1	4.1	4.9	30.73		3928		14.27	2.39	0.14	5.85	6.99
2	-13.40	2010	5.33	2	42	70	.0261	72.5	0.0	2.6	4.4	17.76		2241		4.32	0.31	0	1.12	1.90

Table 25. Summary of Plume Measurements, J79-15, Run No. 25-3.

Run Date 4/8/74, Power Setting MIL, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition						Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm			CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel					Fuel <sub>1</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-17.33	10.3	0.47	0	19.4	21.0	.0022	4.4	0	13.5	14.6	13.95	13.57	729		0.19	0.01	0	0.26	0.28
1	-14.11	14.9	0.92	0	34.3	37.9	.0043	3.3	0	12.4	13.7	15.08		875		0.71	0.02	0	0.88	0.97
1	-10.88	21.3	1.54	0	53.7	59.6	.0073	2.8	0	11.6	12.9	17.76		1081		1.79	0.05	0	2.08	2.31
1	-7.29	30.1	2.37	0	77.9	85.6	.0113	2.5	0	11.0	12.1	24.35		1360		3.85	0.10	0	4.24	4.66
1	-3.70	38.8	3.01	0	95.2	108.8	.0143	2.6	0	10.7	12.2	29.81		1561		5.47	0.14	0	5.85	6.67
1	-0.50	43.5	3.25	0	99.4	112.3	.0154	2.7	0	10.4	11.7	31.36		1633		6.00	0.16	0	6.24	7.02
1	3.58	42.5	3.18	0	97.0	108.5	.0151	2.7	0	10.3	11.6	32.08		1612		6.03	0.16	0	6.21	6.99
1	7.17	37.7	2.74	0	84.1	93.4	.0131	2.7	0	10.3	11.5	28.73		1478		4.98	0.13	0	5.13	5.73
1	10.75	28.9	2.01	0	62.8	70.5	.0096	2.9	0	10.4	11.7	21.11		1243		2.90	0.08	0	3.02	3.39
1	13.99	20.3	1.25	0	43.4	47.5	.0059	3.2	0	11.5	12.6	16.47		974		1.28	0.04	0	1.47	1.61
1	17.21	14.2	0.76	0	27.6	29.9	.0036	3.7	0	12.0	13.0	14.51		829		0.48	0.02	0	0.58	0.62
2	15.40	16.9	1.06	0	39.1	42.6	.0050	3.2	0	12.3	13.4	15.58		912		0.93	0.03	0	1.14	1.25
2	12.82	22.5	1.55	0	54.8	60.7	.0073	2.9	0	11.8	13.1	18.01		1084		1.85	0.54	0	1.10	1.22
2	9.88	29.0	2.16	0	71.7	80.1	.0103	2.7	0	11.1	12.4	22.79		1290		3.35	0.09	0	3.72	4.15
2	6.93	35.8	2.71	0	88.1	99.4	.0129	2.6	0	10.9	12.3	29.17		1469		5.01	0.13	0	5.46	6.16
2	3.97	39.7	3.03	0	99.0	110.8	.0144	2.6	0	11.0	12.3	31.82		1568		5.81	0.15	0	6.38	7.15
2	1.04	41.1	3.09	0	98.8	110.8	.0147	2.7	0	10.8	12.1	31.82		1585		5.88	0.16	0	6.35	7.11
2	-2.34	41.9	3.06	0	98.3	110.1	.0146	2.7	0	10.8	12.1	31.66		1577		5.82	0.16	0	6.29	7.04
2	-4.92	34.9	2.64	0	86.5	95.4	.0126	2.6	0	11.0	12.2	27.82		1444		4.71	0.12	0	5.18	5.75
2	-7.87	27.4	2.02	0	72.5	80.9	.0096	2.7	0	12.0	13.4	21.44		1244		2.96	0.08	0	3.55	3.97
2	-10.65	20.4	1.41	0	52.8	57.6	.0067	2.9	0	12.4	13.6	17.08		1032		1.54	0.04	0	1.91	2.09
2	-13.40	14.7	0.88	0	34.3	38.5	.0041	3.3	0	12.9	14.9	15.01		863		0.67	0.02	0	0.86	1.00

Table 26. Summary of Plume Measurements, J79-15, Run No. 25-4.

Run Date 4/8/74, Power Setting MIN A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel					Fuel (x 10 <sup>-3</sup> )	CO-4 (x 10 <sup>-4</sup> )	HC (x 10 <sup>-5</sup> )	NO <sub>x-5</sub> (x 10 <sup>-5</sup> )
1	-18.04	111	0.67	48.6	14.9	24.6	.0032	32.3	7.1	7.2	11.9	14.15	806		0.35	0.11	0.25	0.42
1	-14.47	203	1.30	87.4	25.1	41.0	.0063	30.6	6.7	6.3	10.3	15.34	999		1.05	0.32	0.70	1.08
1	-10.88	359	2.49	125.4	41.8	69.7	.0121	28.2	5.1	5.5	9.2	18.84	1406		2.88	0.81	1.47	2.65
1	-7.29	827	4.32	113.9	65.2	96.1	.0208	28.5	2.7	5.1	7.5	25.59	1958		6.09	1.74	1.64	4.57
1	-3.70	1087	7.06	66.2	91.6	119	.0336	30.2	1.0	4.5	5.8	29.71	2680		9.42	2.84	0.94	5.46
1	-0.50	1811	7.81	129	83.0	116	.0374	45.2	1.7	3.7	5.1	28.32	2867		9.66	4.37	1.64	4.93
1	3.58	1593	7.69	109	84.1	117	.0367	40.5	1.5	3.8	5.3	30.02	2836		10.04	4.07	1.51	5.32
1	7.17	746	5.76	55.4	76.8	105	.0275	25.5	1.0	4.6	6.2	29.61	2351		8.29	2.11	0.83	5.14
1	10.76	415	3.67	76.4	55.3	83.5	.0176	22.3	2.1	5.1	7.6	22.91	1767		4.87	1.09	1.02	3.70
1	14.35	250	2.02	70.8	34.0	53.9	.0098	24.3	3.5	5.5	8.8	17.35	1252		2.11	0.51	0.74	1.86
1	17.92	149	1.12	45.3	20.3	35.1	.0054	26.1	4.0	5.9	10.2	14.93	938		0.82	0.21	0.33	0.84
2	19.79	112	0.70	26.9	15.6	25.4	.0033	31.3	3.8	7.2	11.8	14.18	816		0.37	0.12	0.14	0.44
2	16.13	212	1.40	51.9	26.0	44.1	.0068	29.6	3.7	6.1	10.3	15.68	1037		1.21	0.36	0.45	1.25
2	12.46	346	2.52	74.8	42.5	69.1	.0122	27.0	3.0	5.6	9.1	19.10	1415		2.96	0.80	0.89	2.69
2	8.97	603	4.25	71.0	64.8	94.8	.0205	27.9	1.7	5.1	7.5	25.64	1939		6.04	1.69	1.03	4.53
2	5.08	1194	6.44	59.8	84.3	113	.0309	36.3	1.0	4.5	6.0	30.47	2529		9.13	3.31	0.91	5.48
2	1.40	1802	7.79	138	78.8	113	.0373	45.0	1.9	3.5	5.0	29.27	2863		9.93	4.47	1.89	4.97
2	-2.34	1433	7.55	87.2	85.2	118	.0360	37.2	1.2	3.9	5.4	30.57	2802		10.07	3.75	1.21	5.44
2	-6.03	789	5.17	95.2	73.0	106	.0248	30.0	1.9	4.8	7.0	28.39	2194		7.50	2.25	1.43	5.25
2	-9.72	504	3.32	129	46.8	78.8	.0161	29.7	3.9	4.7	7.9	22.06	1665		4.38	1.30	1.71	3.46
2	-13.40	289	1.80	96.8	29.4	51.8	.0087	31.4	5.4	5.3	9.4	16.72	1179		1.78	0.56	0.96	1.67
2	-17.07	164	0.95	59.6	17.8	32.5	.0046	33.5	6.2	6.0	11.0	14.64	890		0.64	0.21	0.40	0.70

Table 27. Summary of Plume Measurements, J79-15, Run No. 26-1.

Run Date 4/9/74, Power Setting MID A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition				Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in.²				
		CO ppm	CO₂ %	HC ppm	NO ppm	NO₂ ppm	CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO₂ lb/1000 lb Fuel				Fuel (x 10⁻³)	CO (x 10⁻⁴)	HC (x 10⁻⁵)	NO (x 10⁻⁵)	NO₂ (x 10⁻⁵)
1	-18.76	734	1.29	608	5.00	22.9	.0068	103	43.1	1.2	5.3	14.26	976	0.74	0.76	3.19	0.09	0.39
1	-14.83	1238	2.50	835	6.50	39.9	.0129	91.2	31.6	0.8	5.0	15.96	1394	2.11	1.92	6.67	0.17	1.06
1	-11.41	1669	4.50	657	19.8	68.6	.0224	70.4	14.5	1.4	5.0	20.08	1997	4.89	3.44	7.09	0.68	2.45
1	-7.65	1694	7.74	155	67.6	107	.0370	42.7	2.1	3.0	4.8	27.39	2829	9.37	4.00	1.97	2.81	4.50
1	-4.23	1564	10.6	6.8	119	147	.0495	29.1	0.1	4.0	5.0	30.79	3458	12.31	3.58	0.12	4.92	6.16
1	-0.30	879	10.2	0	113	138	.0475	17.1	0	4.0	4.9	29.30	3371	11.50	1.97	0	4.60	5.64
1	3.94	924	10.2	0	111	132	.0476	17.9	0	3.9	4.7	29.71	3375	11.65	2.09	0	4.54	5.48
1	7.35	1647	9.13	133	85.0	121	.0432	35.3	1.6	3.3	4.7	30.12	3148	11.16	3.94	1.79	3.68	5.25
1	10.93	2123	5.48	970	19.3	76.2	.0273	73.2	17.7	1.2	4.6	23.01	2266	6.60	4.83	11.68	0.79	3.04
1	15.06	1675	3.02	1711	4.30	43.5	.0160	99.5	52.5	0.4	4.4	17.35	1561	3.07	3.05	16.12	0.12	1.35
1	18.63	1044	1.55	1246	3.20	24.4	.0085	117	71.1	0.6	4.6	14.82	1078	1.16	1.36	8.25	0.07	0.53
2	21.24	824	1.33	853	3.80	24.2	.0071	110	57.6	0.8	5.4	14.38	962	0.83	0.91	4.78	0.07	0.45
2	17.59	1322	2.52	1088	5.00	40.2	.0132	95.4	40.3	0.6	4.9	16.35	1402	2.32	2.21	9.35	0.14	1.14
2	13.56	1759	4.45	848	15.0	66.0	.0223	74.5	18.8	1.1	4.8	20.61	1985	5.07	3.78	9.53	0.56	2.43
2	9.51	1681	7.62	235	65.0	104	.0365	43.0	3.20	2.9	4.7	27.82	2799	9.42	4.05	3.01	2.73	4.43
2	5.45	895	10.2	9.50	115	135	.0474	17.4	0.1	4.1	4.8	30.05	3363	11.73	2.04	0.12	4.81	5.63
2	1.40	829	9.93	0.50	110	131	.0463	16.5	0	4.0	4.7	29.17	3314	11.29	1.86	0	4.52	5.31
2	-2.71	1178	10.3	0	122	145	.0481	22.6	0	4.3	5.1	30.36	3396	11.95	2.70	0	5.14	6.09
2	-6.77	1666	8.76	80.7	95.8	126	.0416	37.2	1.0	3.8	5.0	29.48	3065	10.70	3.98	1.07	4.07	5.35
2	-10.82	1756	5.09	527	32.1	72.8	.0252	65.9	10.4	2.1	4.7	21.49	2162	5.75	3.79	5.98	1.21	2.70
2	-14.87	1270	2.67	804	9.90	41.7	.0137	88.0	28.7	1.2	4.9	16.51	1450	2.43	2.14	6.97	0.29	1.19
2	-18.90	689	1.23	626	5.00	21.7	.0064	101	46.6	1.2	5.3	14.28	953	0.72	0.73	3.36	0.09	0.38

Table 28. Summary of Plume Measurements, J79-15, Run No. 26-2.

Run Date 4/9/74, Power Setting MAX A/B, Axial Station 7.5 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Static Press psia	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>				Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-18.91	347	2.25	0	26.7	36.3	.0109	30.3	0	3.9	5.3	14.57	13.54	1302	1.21	0.37	0	0.47	0.64
1	-15.35	463	3.88	0	43.8	58.5	.0186	23.6	0	3.8	5.1	16.52		1806	2.94	0.69	0	1.12	1.50
1	-11.77	727	6.10	0	62.1	84.1	.0291	23.5	0	3.5	4.7	20.39		2418	5.83	1.37	0	2.05	2.74
1	-8.18	1889	9.58	0	102	130	.0453	38.6	0	3.8	4.8	27.55		3248	10.62	4.10	0	4.04	5.10
1	-4.23	3528	11.4	0	126	156	.0539	60.1	0	3.9	4.9	29.71		3639	12.61	7.58	0	4.92	6.18
1	-0.55	1176	10.4	0	113	140	.0484	22.4	0	3.9	4.8	28.11		3411	11.24	2.52	0	4.38	5.40
1	3.76	1238	10.6	0	112	138	.0493	23.5	0	3.8	4.7	29.25		3453	11.75	2.76	0	4.47	5.52
1	7.70	2433	10.4	0	107	134	.0492	45.6	0	3.6	4.5	29.76		3433	11.94	5.44	0	4.30	5.37
1	11.29	915	7.45	0	65.4	90.9	.0353	25.8	0	3.1	4.2	22.60		2755	7.50	1.94	0	2.33	3.15
1	14.87	604	4.21	0	35.9	52.1	.0202	28.2	0	2.9	4.2	16.99		1904	3.34	0.94	0	0.97	1.40
1	18.44	365	2.08	0	20.4	30.0	.0101	34.4	0	3.2	4.7	14.51		1248	1.11	0.38	0	0.36	0.52
2	23.06	379	1.71	1.2	16.6	26.1	.0083	43.3	0.1	3.2	5.0	14.28		1123	0.85	0.37	0.09	0.27	0.43
2	18.69	549	3.37	0	35.3	48.3	.0163	32.0	0	3.5	4.8	15.84		1656	2.37	0.76	0	0.83	1.14
2	14.29	732	5.96	0	59.9	79.0	.0284	24.2	0	3.4	4.5	19.83		2381	5.52	1.34	0	1.88	2.48
2	9.88	1703	9.73	0	103	129	.0459	34.3	0	3.8	4.7	27.67		3281	10.74	3.68	0	4.08	5.05
2	5.45	1528	10.8	0	119	141	.0504	27.9	0	4.0	4.7	30.10		3502	12.21	3.41	0	4.88	5.74
2	1.04	954	10.0	0	107	128	.0467	18.9	0	3.8	4.6	28.75		3331	11.21	2.12	0	4.26	5.16
2	-3.81	1769	10.6	0	122	145	.0505	32.2	0	4.0	4.8	30.16		3504	12.25	3.94	0	4.90	5.88
2	-7.87	2392	10.3	0	113	138	.0486	45.4	0	3.9	4.8	29.01		3404	11.60	5.27	0	4.52	5.57
2	-12.30	916	6.55	0	58.6	77.0	.0312	27.6	0	3.1	4.1	20.35		2531	6.08	1.68	0	1.88	2.49
2	-16.70	523	3.19	0	30.2	39.6	.0154	32.2	0	3.2	4.1	15.42		1602	2.07	0.67	0	0.66	0.85
2	-20.72	295	1.38	0	14.3	21.1	.0067	41.8	0	3.4	5.0	14.02		1001	0.58	0.24	0	0.20	0.29

Table 29. Summary of Plume Measurements, J79-15, Run No. 27-1.

Run Date 4/10/74, Power Setting MIL, Axial Station 15 ft

Probe No.	Radial Position In.	Measured Gas Composition				Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel <sup>1</sup> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-22.80	5.6	0.16	0	9.8	9.5	.0006	7.0	0	20.1	13.69	13.59	562		0.03	0	0	0.06
1	-23.17	7.7	0.31	0	16.5	16.8	.0014	5.0	0	17.6	14.05		62		0.13	0.01	0	0.26
1	-17.49	12.2	0.69	0	29.4	31.8	.0032	3.5	0	14.1	15.2	14.87	789		0.52	0.02	0	0.73
1	-11.77	18.0	1.16	0	47.3	50.6	.0055	3.1	0	13.5	14.4	16.99	926		1.32	0.04	0	1.78
1	-6.02	25.1	1.75	0	64.6	70.9	.0083	2.9	0	12.3	13.5	21.78	1133		2.75	0.08	0	3.38
1	-0.55	29.6	2.11	0	73.7	81.1	.0101	2.8	0	11.7	12.8	26.52	1256		3.90	0.11	0	4.56
1	3.76	29.9	2.07	0	71.0	79.0	.0089	2.9	0	11.5	12.7	26.10	1242		3.79	0.11	0	4.36
1	11.29	20.4	1.30	0	51.0	55.5	.0062	3.1	0	13.0	14.1	18.58	970		1.74	0.05	0	2.26
1	17.02	14.7	0.82	0	34.3	36.6	.0039	3.6	0	13.7	14.7	15.23	832		0.68	0.02	0	0.93
1	22.70	9.7	0.40	0	18.5	21.1	.0018	4.8	0	15.0	17.1	14.05	671		0.19	0.01	0	0.29
1	28.33	5.8	0.13	0	9.2	10.1	.0005	8.9	0	23.2	25.5	13.59	550		0	0	0	0
2	29.92	7.6	0.24	0	13.6	15.4	.0010	6.2	0	18.4	20.8	13.81	596		0.08	0.01	0	0.15
2	24.51	10.7	0.47	0	22.3	24.5	.0021	4.5	0	15.7	17.2	14.18	703		0.25	0.01	0	0.39
2	18.69	15.2	0.84	0	35.7	38.9	.0040	3.6	0	14.0	15.2	15.42	836		0.74	0.03	0	1.04
2	12.82	21.2	1.31	0	51.0	57.1	.0062	3.2	0	12.9	14.4	18.33	975		1.71	0.05	0	2.21
2	6.93	27.6	1.86	0	67.8	76.6	.0088	3.0	0	12.2	13.7	24.03	1171		3.22	0.10	0	3.93
2	1.04	31.0	2.10	0	76.1	84.3	.0100	2.9	0	12.1	13.4	27.51	1251		4.02	0.12	0	4.86
2	-4.92	25.1	1.68	0	62.9	70.4	.0080	3.0	0	12.5	14.0	21.54	1110		2.63	0.08	0	3.29
2	-10.82	17.8	1.09	0	43.8	49.2	.0052	3.3	0	13.3	14.9	16.67	904		1.19	0.04	0	1.58
2	-16.70	11.4	0.56	0	25.3	29.5	.0026	4.0	0	14.8	17.3	14.59	744		0.38	0.02	0	0.56
2	-22.54	8.4	0.27	0	15.7	17.2	.0012	6.2	0	19.1	20.8	13.81	608		0.09	0.01	0	0.17
2	-28.32	5.3	0.08	0	7.4	7.9	.0003	12.8	0	29.3	31.0	13.66	532		0.01	0	0	0.03

Table 30. Summary of Plume Measurements, J79-15, Run No. 27-2.

Run Date 4/10/74, Power Setting MIN A/B, Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		Fuel	HC	NO <sub>x</sub>				Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-30.54	58.6	0.23	16.2	6.3	10.9	.0010	49.3	6.8	8.7	15.1	13.69	595	0.05	0.02	0.3	0.04	0.08
1	-24.58	105	0.52	30.0	10.8	18.9	.0025	39.1	5.6	6.7	11.6	13.95	733	0.22	0.09	1.2	0.15	0.26
1	-18.56	198	1.06	52.4	18.7	31.2	.0051	36.5	4.9	5.7	9.5	14.72	900	0.72	0.26	3.5	0.41	0.68
1	-12.48	324	1.98	72.6	29.8	51.5	.0096	32.1	3.7	4.9	8.5	17.14	1217	2.04	0.65	7.5	1.00	1.73
1	-6.38	556	3.51	61.1	50.6	76.8	.0170	31.1	1.8	4.8	7.3	21.98	1705	4.55	1.42	8.2	2.18	3.32
1	-0.55	697	4.65	33.0	68.2	91.7	.0223	29.5	0.7	5.0	6.7	25.49	2035	6.39	1.89	4.5	3.20	4.28
1	5.91	614	3.96	35.9	57.7	80.8	.0191	30.5	0.9	4.9	6.9	24.51	1837	5.55	1.69	5.0	2.72	3.83
1	12.01	349	2.39	43.0	38.6	60.9	.0116	28.7	1.8	5.3	8.4	17.86	1354	2.55	0.73	4.6	1.35	2.14
1	18.09	202	1.27	36.1	20.4	35.4	.0061	31.3	2.8	5.2	9.1	15.29	965	1.02	0.32	2.9	0.53	0.93
1	24.12	109	0.64	21.4	13.1	21.7	.0030	33.5	3.3	6.6	11.0	14.20	776	0.34	0.11	1.1	0.22	0.37
1	30.08	49.5	0.23	5.2	6.7	11.2	.0010	41.6	2.2	9.3	15.5	13.59	596	0.01	0	0	0.01	0.02
2	32.06	70.1	0.31	13.8	8.4	14.3	.0014	43.8	4.3	8.6	14.6	13.71	632	0.08	0.04	0.3	0.07	0.12
2	25.96	122	0.66	25.4	13.1	22.6	.0032	35.9	3.8	6.4	11.0	14.07	785	0.31	0.11	1.2	0.20	0.34
2	19.79	202	1.20	39.0	20.8	36.4	.0058	32.8	3.2	5.6	9.8	15.27	945	0.98	0.32	3.1	0.55	0.96
2	13.56	352	2.30	53.1	36.1	58.3	.0111	30.1	2.3	5.2	8.4	18.22	1323	2.58	0.78	5.9	1.34	2.17
2	7.30	549	3.84	38.1	57.5	81.3	.0185	28.1	1.0	5.0	7.1	23.98	1802	5.32	1.49	5.3	2.66	3.78
2	1.04	692	4.79	27.1	71.4	94.1	.0230	28.4	0.6	5.0	6.7	28.13	2073	7.13	2.02	4.3	3.57	4.78
2	-5.29	578	3.61	52.6	54.9	77.4	.0174	31.4	1.5	5.1	7.2	23.41	1735	4.99	1.57	7.5	2.54	3.59
2	-11.56	350	2.18	60.0	33.9	58.3	.0106	31.5	2.8	5.1	8.8	17.91	1285	2.40	0.76	6.7	1.22	2.11
2	-17.80	208	1.16	48.8	20.0	35.6	.0056	34.9	4.2	5.6	9.9	15.11	932	0.91	0.32	3.8	0.51	0.90
2	-23.99	106	0.52	25.0	10.4	19.8	.0024	39.7	4.7	6.5	12.3	14.02	731	0.24	0.10	1.1	0.16	0.30
2	-30.12	54.3	0.18	13.1	5.7	10.2	.0008	57.0	6.9	9.8	17.5	13.60	576	0.02	0.01	0.1	0.02	0.04

Table 31. Summary of Plume Measurements, J79-15, Run No. 27-3.

Run Date 4/10/74, Power Setting MID A/B, Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition						Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm			CO lb/1000 lb Fuel	HC	NO	NO <sub>x</sub>					Fuel <sub>1</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x-5</sub> (x 10 <sup>-5</sup> )
1	-34.01	181	0.45	85.8	2.70	9.70	.0022	75.4	17.9	1.9	6.7	13.64	13.56	708		0.09	0.07	1.6	0.02	0.06	
1	-27.40	327	0.94	114	4.60	15.1	.0047	66.0	11.6	1.5	5.1	13.90		877		0.36	0.24	4.2	0.05	0.18	
1	-20.69	597	1.96	159	10.1	29.6	.0097	58.6	8.0	1.7	4.9	14.62		1221		1.13	0.66	9.0	0.19	0.55	
1	-13.91	835	3.56	151	25.1	53.2	.0174	45.6	4.3	2.3	4.9	16.68		1728		2.88	1.31	12.4	0.66	1.41	
1	-7.10	872	6.24	45.3	63.9	88.0	.0298	27.5	0.8	3.5	4.8	22.70		2464		6.77	1.86	5.4	2.37	3.25	
1	-0.55	750	8.65	13.3	87.2	112	.0406	17.2	0.2	3.6	4.6	25.18		3041		9.13	1.57	1.8	3.29	4.20	
1	6.63	1177	7.05	122	57.5	89.8	.0336	32.7	1.8	2.8	4.4	24.71		2668		8.00	2.62	14.4	2.24	3.52	
1	13.63	1263	4.22	358	21.5	54.9	.0208	57.5	8.5	1.7	4.3	18.43		1926		4.03	2.32	34.3	0.69	1.73	
1	20.57	843	2.15	437	7.10	33.4	.0108	74.0	19.6	1.0	4.9	15.18		1287		1.52	1.12	29.8	0.15	0.74	
1	26.93	460	0.94	376	3.30	17.4	.0048	89.4	36.9	1.1	5.6	13.95		877		0.40	0.36	14.8	0.04	0.22	
1	33.56	249	0.46	203	1.90	9.10	.0023	98.9	40.6	1.3	5.9	13.64		712		0.09	0.89	3.7	0.01	0.05	
2	35.61	304	0.59	223	2.90	11.0	.0030	94.4	35.0	1.5	5.7	13.66		765		0.13	0.12	4.6	0.02	0.07	
2	28.48	561	1.26	335	4.70	20.4	.0064	83.2	25.2	1.2	5.0	14.07		972		0.58	0.48	14.6	0.07	0.29	
2	21.97	846	2.26	374	9.40	34.5	.0113	71.0	16.1	1.3	4.9	15.16		1322		1.55	1.10	25.0	0.20	0.76	
2	15.03	1171	4.04	349	24.0	61.8	.0199	55.8	8.7	2.0	5.0	17.91		1870		3.70	2.06	32.2	0.74	1.85	
2	8.03	1090	6.29	101	58.4	88.0	.0301	33.9	1.7	3.2	4.8	24.14		2480		7.30	2.47	12.4	2.34	3.50	
2	1.04	763	8.53	18.7	87.8	113	.0401	17.7	0.2	3.6	4.7	28.29		3015		10.08	1.78	2.0	3.63	4.74	
2	-6.03	968	6.89	54.3	64.3	93.7	.0328	27.6	0.8	3.2	4.7	24.45		2627		7.79	2.15	6.2	2.49	3.66	
2	-13.03	1026	4.11	189	28.0	59.6	.0201	48.4	4.6	2.3	4.8	18.33		1890		3.88	1.88	17.8	0.89	1.86	
2	-19.99	791	2.39	230	11.6	37.5	.0119	63.3	9.4	1.6	5.0	15.21		1365		1.63	1.03	15.3	0.26	0.82	
2	-26.89	381	1.10	159	5.40	20.2	.0054	66.0	13.9	1.6	5.8	13.97		919		0.45	0.30	6.3	0.07	0.26	
2	-33.68	189	0.44	85.1	2.60	9.20	.0021	80.5	18.2	1.8	6.4	13.60		702		0.06	0.05	1.1	0.01	0.04	

Table 32. Summary of Plume Measurements, J79-15, Run No. 27-4.

Run Date 4/10/74, Power Setting MAX A.B., Axial Station 15 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO <sub>4</sub> (x 10 <sup>-4</sup> )	HC <sub>6</sub> (x 10 <sup>-6</sup> )	NO <sub>5</sub> (x 10 <sup>-5</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
1	-35.74	60.6	0.65	0	6.8	10.6	.0030	18.6	0	3.4	5.4	13.64	13.56	783		0.12	0.02	0	0.04	0.06
1	-28.80	125	1.42	0	16.5	19.0	.0068	17.5	0	3.8	4.4	13.90		1025		0.49	0.09	0	0.19	0.22
1	-21.75	206	2.65	0	29.4	36.0	.0127	15.4	0	3.7	4.5	14.72		1439		1.42	0.22	0	0.53	0.64
1	-14.63	276	4.62	0	48.1	61.8	.0220	11.8	0	3.6	4.6	16.83		2026		3.42	0.40	0	1.23	1.57
1	-7.46	465	8.04	0	75.5	97.0	.0377	11.5	0	3.3	4.3	22.86		2896		7.88	0.91	0	2.60	3.39
1	-0.55	587	10.1	0	99.5	125	.0469	11.6	0	3.5	4.4	26.00		3354		10.25	1.19	0	3.59	4.51
1	6.99	359	8.29	0	73.5	98.8	.0388	8.6	0	3.1	4.2	21.04		2955		8.47	0.73	0	2.63	3.56
1	14.16	272	4.80	0	43.5	60.0	.0228	11.3	0	3.1	4.3	17.40		2075		3.79	0.43	0	1.17	1.63
1	21.28	198	2.57	0	24.2	33.7	.0123	15.3	0	3.1	4.4	14.67		1414		1.36	0.21	0	0.42	0.60
1	28.33	118	1.10	0	11.5	17.4	.0052	21.2	0	3.4	5.2	13.69		915		0.25	0.05	0	0.09	0.01
1	35.63	38.7	0.33	0	3.8	7.5	.0015	22.9	0	3.7	7.3	13.59		648		0.04	0	0	0.02	0.03
2	37.72	99.5	0.71	0	8.0	12.4	.0034	27.6	0	3.7	5.7	13.71		805		0.18	0.05	0	0.07	0.10
2	30.28	170	1.56	0	17.3	24.0	.0075	21.5	0	3.7	5.1	14.07		1078		0.65	0.14	0	0.24	0.33
2	23.06	247	2.98	0	33.4	44.1	.0143	16.4	0	3.8	5.0	15.21		1544		1.84	0.30	0	0.70	0.92
2	15.76	304	5.29	0	52.4	73.8	.0251	11.4	0	3.4	4.8	18.33		2208		4.47	0.51	0	1.52	2.15
2	8.40	435	8.45	0	80.6	106	.0395	10.2	0	3.4	4.4	23.02		2992		8.92	0.91	0	3.03	3.92
2	1.04	573	9.88	0	103	129	.0460	11.5	0	3.7	4.7	28.18		3311		10.90	1.25	0	4.03	5.12
2	-6.40	480	8.34	0	80.2	107	.0391	11.4	0	3.4	4.5	24.40		2968		8.64	0.98	0	2.94	3.89
2	-13.77	294	5.04	0	47.7	65.9	.0240	11.6	0	3.2	4.5	17.65		2142		4.03	0.47	0	1.29	1.81
2	-20.72	210	2.79	0	29.5	37.0	.0134	14.9	0	3.5	4.4	14.90		1485		1.59	0.24	0	0.56	0.70
2	-28.32	136	1.46	0	16.2	21.3	.0070	18.3	0	3.7	4.8	13.46		1040		0.48	0.09	0	0.18	0.23
2	-35.46	60.5	0.58	0	7.5	11.7	.0027	20.8	0	4.3	6.6	13.56		759		0	0	0	0	0

Table 33. Summary of Plume Measurements, J79-15, Run No. 23-2.

Run Date 4/3/74, Power Setting MIL, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO			CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> (x 10 <sup>-5</sup> )				Fuel (x 10 <sup>-5</sup> )	CC (x 10 <sup>-5</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
					ppm	ppm													
1	-49.16	6.4	0.10	0	8.6	9.9	.0004	12.0	0	26.8	30.8	13.66	543	606	0.02	0	0.05	0.06	
1	-39.24	7.9	0.20	0	12.7	13.2	.0008	7.9	0	20.9	21.7	13.83	580	647	0.07	0.06	0	0.15	
1	-29.49	9.8	0.32	0	17.9	19.1	.0014	6.0	0	18.1	19.3	14.02	635	706	0.16	0.10	0	0.29	
1	-20.04	11.3	0.45	0	23.3	25.6	.0021	5.0	0	17.0	18.6	14.75	696	764	0.38	0.19	0	0.65	
1	-11.81	13.1	0.58	0	28.0	31.7	.0027	4.5	0	15.8	17.9	15.78	754	816	0.68	0.31	0	1.07	
1	8.96	13.9	0.65	0	30.9	34.0	.0030	4.3	0	15.6	17.2	16.21	778	841	0.83	0.36	0	1.29	
1	15.33	13.2	0.57	0	28.0	29.7	.0026	4.6	0	16.2	17.2	15.32	749	798	0.59	0.27	0	0.96	
1	24.39	10.8	0.36	0	19.4	20.2	.0016	6.0	0	17.7	18.5	14.34	651	728	0.25	0.15	0	0.44	
1	34.03	8.6	0.26	0	15.7	17.5	.0011	6.5	0	19.5	21.7	14.04	607	684	0.14	0.09	0	0.27	
1	43.83	6.3	0.11	0	9.3	8.8	.0004	11.0	0	26.8	25.2	13.69	547	615	0.02	0.02	0	0.05	
1	53.65	4.8	0.03	0	4.1	3.1	.0000	27.3	0	38.1	28.9	13.60	518	560	0	0	0	0	
2	-56.69	4.8	0.04	0	4.4	4.7	.0000	25.9	0	39.0	42.0	13.60	518	569	0	0	0	0	
2	-46.17	6.2	0.07	0	10.9	7.1	.0002	16.4	0	47.6	30.9	13.66	531	625	0.01	0.02	0	0.05	
2	-35.70	8.5	0.24	0	15.6	17.8	.0010	7.10	0	21.4	24.4	13.85	597	685	0.10	0.07	0	0.21	
2	-25.25	10.4	0.40	0	23.3	24.8	.0018	5.20	0	19.0	20.2	14.74	671	773	0.34	0.18	0	0.65	
2	-15.17	13.8	0.60	0	30.9	33.7	.0028	4.50	0	16.9	18.4	15.79	762	852	0.70	0.32	0	1.18	
2	-2.46	15.6	0.73	0	36.4	39.0	.0034	4.20	0	16.3	17.5	16.95	806	914	1.06	0.45	0	1.73	
2	7.44	14.7	0.68	0	33.0	36.5	.0032	4.30	0	16.0	17.7	16.21	787	878	0.86	0.37	0	1.38	
2	17.85	12.7	0.55	0	27.4	31.9	.0025	4.60	0	16.4	19.0	15.16	742	809	0.54	0.25	0	0.89	
2	28.33	10.3	0.34	0	19.8	22.5	.0015	6.00	0	18.9	21.5	14.00	643	709	0.18	0.11	0	0.34	
2	38.76	6.9	0.13	0	11.9	10.4	.0005	11.0	0	31.2	27.2	13.64	551	641	0.03	0.03	0	0.09	
2	49.12	6.8	0.09	0	6.80	4.4	.0003	14.6	0	23.9	15.5	13.60	537	598	0.01	0.01	0	0.02	

NOTE: Radial position adjusted for symmetry.

Table 34. Summary of Plume Measurements, J79-15, Run No. 23-3.

Run Date 4/3/74, Power Setting MIN A/B, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel 3 (x 10 <sup>-3</sup> )	CO 5 (x 10 <sup>-5</sup> )	HC 6 (x 10 <sup>-5</sup> )	NO 5 (x 10 <sup>-5</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
1	-75.45	15.0	0.13	3.7	2.7	2.4	.0005	22.5	2.8	6.6	5.9	13.58	13.64		571	0	0	0	0	0
1	-61.24	35.7	0.29	6.6	4.3	6.2	.0013	24.6	2.3	4.9	7.1	13.61	13.61		628	0	0	0	0	0
1	-46.90	60.3	0.56	10.1	7.8	11.2	.0026	21.3	1.8	4.5	6.5	13.72	13.56		714	0.16	0.34	0.3	0.07	0.10
1	-32.49	109	1.09	17.5	14.1	22.2	.0052	19.7	1.6	4.3	6.7	14.21	13.40		887	0.65	1.28	1.0	0.28	0.44
1	-18.35	163	1.63	23.5	19.6	32.3	.0078	19.8	1.5	4.0	6.5	15.51	13.35		1063	1.58	3.13	2.4	0.63	1.03
1	-3.83	200	2.02	25.2	23.5	38.5	.0097	19.5	1.3	3.8	6.3	16.70	13.27		1130	2.54	4.95	3.3	0.97	1.60
1	13.16	176	1.75	22.6	20.2	34.5	.0084	19.9	1.3	3.8	6.5	15.67	13.30		1046	1.81	3.60	2.4	0.69	1.18
1	27.32	115	1.14	16.9	13.8	22.8	.0054	20.0	1.5	4.0	6.6	14.29	13.38		857	0.74	1.48	1.1	0.30	0.49
1	41.39	75.1	0.81	13.0	11.0	17.7	.0038	18.4	1.6	4.5	7.2	13.99	13.40		789	0.43	0.79	0.7	0.19	0.31
1	55.92	39.8	0.21	4.3	2.7	4.6	.0009	37.1	2.0	4.2	7.1	13.58	13.61		615	0	0	0	0	0
1	70.03	5.5	0.03	0.2	0.6	0.6	.0000	30.7	0.6	5.5	5.7	13.55	13.64		538	0	0	0	0	0
2	-71.72	8.5	0.04	2.2	1.2	1.5	.0000	44.5	5.8	9.9	12.6	13.53	13.63		549	0	0	0	0	0
2	-57.74	26.1	0.18	8.4	4.6	5.8	.0008	27.7	4.5	8.0	10.1	13.56	13.58		622	0	0	0	0	0
2	-43.69	73.2	0.57	16.5	8.8	14.6	.0027	25.4	2.9	5.1	8.4	13.77	13.47		744	0.22	0.56	0.6	0.11	0.18
2	-29.45	126	0.95	20.7	15.0	22.6	.0046	26.0	2.1	5.1	7.7	14.29	13.37		883	0.62	1.61	1.3	0.32	0.48
2	-15.76	197	1.69	25.9	22.3	36.7	.0081	23.1	1.5	4.4	7.2	15.66	13.24		1109	1.72	3.97	2.6	0.76	1.24
2	5.92	236	2.10	27.9	26.9	44.3	.0101	22.2	1.3	4.2	7.0	17.63	13.13		1260	3.01	6.68	3.9	1.26	2.11
2	16.31	176	1.59	22.0	19.1	34.6	.0076	21.8	1.4	4.0	7.2	15.56	13.21		1089	1.60	3.49	2.2	0.64	1.15
2	30.15	110	0.90	14.1	12.3	20.6	.0043	23.9	1.5	4.4	7.5	14.06	13.37		850	0.51	1.22	0.8	0.22	0.38
2	44.27	48.7	0.38	6.6	6.2	10.8	.0017	25.1	1.7	5.3	9.2	13.69	13.47		698	0.12	0.30	0.2	0.04	0.11
2	58.31	30.0	0.25	7.6	5.0	7.3	.0011	23.6	3.0	6.5	9.4	13.58	13.50		652	0.05	0.12	0.2	0.03	0.05
2	71.90	17.6	0.08	0.8	1.6	3.0	.0002	45.5	1.1	7.0	12.7	13.58	13.63		572	0	0	0	0	0

NOTE: Radial position adjusted for symmetry.

Table 35. Summary of Plume Measurements, J79-15, Run No. 22.

Run Date 4/1/74, Power Setting MID A/B, Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition							Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>					NO <sub>x-5</sub> (x 10 <sup>-5</sup> )
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>2</sub> ppm	NO <sub>x</sub> ppm	CO lb/1000 lb Fuel		HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>2</sub> lb/1000 lb Fuel	Fuel <sub>13</sub> (x 10 <sup>-3</sup> )					CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )			
1	-75.67	53.4	0.12	1.0	3.0	3.3	.0005	85.9	0.8	7.9	8.7	13.61	13.66				602	0	0	0	0	0	
1	-60.28	91.3	0.36	12.6	3.4	6.3	.0017	49.3	3.4	3.0	5.6	13.66	13.64				680	0.04	0.02	0.1	0.01	0.02	
1	-44.70	191	0.76	27.3	4.8	11.3	.0036	48.9	3.6	2.1	4.8	13.79	13.56				807	0.25	0.12	0.9	0.05	0.12	
1	-29.18	322	1.50	49.0	8.0	23.2	.0073	41.9	3.3	1.7	5.1	14.31	13.42				1046	0.88	0.37	2.9	0.15	0.45	
1	-14.70	453	2.44	71.1	14.4	34.1	.0119	36.3	2.9	2.0	4.6	15.75	13.30				1337	2.28	0.83	6.6	0.46	1.05	
1	11.27	492	2.85	73.1	19.4	40.3	.0138	33.8	2.6	2.3	4.7	17.33	13.24				1457	3.55	1.20	9.2	0.82	1.67	
1	23.16	432	2.13	69.5	11.5	30.4	.0104	39.6	3.3	1.8	4.7	15.40	13.30				1267	1.87	0.74	6.2	0.34	0.88	
1	38.64	287	1.04	81.8	5.6	16.4	.0051	53.2	7.7	1.7	5.1	14.10	13.48				923	0.54	0.29	4.2	0.09	0.28	
1	54.31	129	0.34	48.2	2.4	6.2	.0016	72.3	13.6	2.3	5.7	13.69	13.58				700	0.08	0.06	1.1	0.02	0.05	
1	69.72	12.4	0.02	-4.5	1.2	1.9	0		0	15.5	-	13.61	13.69				558	0	0	0	0	0	
1	85.07	2.4	-0.02	-9.0	0.7	0.9	0	-	0	884	-	13.64	13.69				531	0	0	0	0	0	
2	-84.61	1.8	-0.01	-7.2	0.7	0.9	0	-	0	314	-	13.66	13.68				543	0	0	0	0	0	
2	-65.95	28.2	0.04	0.1	1.4	1.9	.00006	-	0.2	11.2	-	13.64	13.63				589	0	0	0	0	0	
2	-53.79	85.8	0.27	18.0	3.3	8.0	.0012	60.4	6.4	3.9	9.4	13.63	13.58				722	0.06	0.04	0.4	0.02	0.06	
2	-35.51	269	1.15	43.8	7.7	18.8	.0056	45.7	3.8	2.2	5.3	14.08	13.39				985	0.61	0.28	2.3	0.13	0.32	
2	-22.20	421	2.25	54.7	15.1	32.8	.0109	36.6	2.4	2.2	4.8	15.45	13.21				1322	2.00	0.73	4.8	0.44	0.96	
2	-4.26	549	3.18	82.2	22.6	46.5	.0154	33.8	2.6	2.4	4.9	18.16	13.13				1684	4.24	1.43	11.0	1.02	2.08	

NOTES: Radial position adjusted for symmetry.  
Probe #2 sweep is incomplete.

NOTES: Radial position adjusted for symmetry.  
Probe #2 sweep is incomplete.

Table 36. Summary of Plume Measurements, J79-15, Run No. 23-1.

Run Date 4/3/74, Power Setting MAX A.B., Axial Station 30 ft

Probe No.	Radial Position in.	Measured Gas Composition					Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	Fuel/Air Ratio	CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel					Fuel <sup>3</sup> (x 10 <sup>-3</sup> )	CO <sup>5</sup> (x 10 <sup>-5</sup> )	HC <sup>6</sup> (x 10 <sup>-6</sup> )	NO <sup>5</sup> (x 10 <sup>-5</sup> )	NO <sub>x</sub> <sup>5</sup> (x 10 <sup>-5</sup> )
1	-79.95	13.8	0.12	0	2.0	3.6	.0005	22.2	0	5.2	9.7	13.55	13.64	606	0	0	0	0	0
1	-62.42	31.5	0.38	0	5.9	7.4	.0017	16.5	0	5.1	6.4	13.58	13.56	708	0.04	0.07	0	0.02	0.03
1	-45.62	57.0	0.90	0	12.5	14.5	.0043	12.6	0	4.6	5.3	13.72	13.48	894	0.28	0.35	0	0.13	0.15
1	-28.80	78.0	1.50	0	19.2	24.0	.0072	10.3	0	4.2	5.3	14.15	13.40	1113	0.77	0.79	0	0.32	0.41
1	-13.10	105	2.52	0	33.0	38.7	.0120	8.3	0	4.4	5.1	15.32	13.22	1379	2.08	1.73	0	0.92	1.06
1	12.28	113	3.03	0	40.0	47.9	.0145	7.4	0	4.4	5.3	17.03	13.17	1523	3.50	2.59	0	1.54	1.86
1	26.64	89.2	2.16	0	28.5	35.1	.0103	8.2	0	4.4	5.4	15.13	13.22	1326	1.72	1.41	0	0.76	0.93
1	43.42	44.8	0.86	0	11.9	15.7	.0041	10.3	0	4.5	6.0	13.72	13.48	896	0.27	0.28	0	0.12	0.16
1	60.19	12.3	0.15	0	2.6	3.9	.0006	16.6	0	5.7	8.6	13.53	13.58	630	0	0	0	0	0
1	77.15	5.8	0.02	0	0.4	0.5	-	-	0	5.3	7.1	13.55	13.61	538	0	0	0	0	0
1	93.35	3.0	0.01	0	-	0.1	-	-	0	-	6.1	13.55	13.66	516	0	0	0	0	0
2	-88.93	6.9	0.03	0	0.8	1.0	.0000	-	0	8.2	10.4	13.58	13.66	554	0	0	0	0	0
2	-72.48	10.8	0.08	0	1.8	2.1	.0003	26.9	0	7.5	8.5	13.56	13.58	604	0	0	0	0	0
2	-55.71	28.0	0.35	0	5.8	8.8	.0016	15.7	0	5.3	8.1	13.64	13.52	764	0.08	0.13	0	0.04	0.06
2	-38.65	62.0	1.16	0	18.2	20.8	.0055	10.7	0	5.2	5.9	14.14	13.39	1120	0.59	0.63	0	0.31	0.35
2	-21.84	95.1	2.22	0	30.3	39.0	.0106	8.5	0	4.6	5.9	15.19	13.18	1489	1.71	1.45	0	0.79	1.01
2	-5.00	121	3.30	0	46.9	55.9	.0157	7.3	0	4.8	5.7	17.84	13.05	1854	4.00	2.92	0	1.92	2.28
2	14.73	126	2.87	0	40.0	48.0	.0137	8.8	0	4.7	5.6	16.71	13.05	1648	3.07	2.70	0	1.44	1.72
2	31.44	103	1.60	0	22.9	28.2	.0077	12.8	0	4.7	5.8	14.50	13.29	1211	1.03	1.32	0	0.48	0.60
2	48.29	57.7	0.71	0	9.9	13.6	.0033	16.2	0	4.6	6.3	13.74	13.45	861	0.25	0.41	0	0.12	0.16
2	64.92	51.3	0.52	0	6.1	10.2	.0024	19.6	0	3.8	6.4	13.64	13.47	749	0.14	0.27	0	0.05	0.09
2	81.19	17.0	0.08	0	1.7	2.8	.0003	40.9	0	6.7	10.9	13.58	13.60	602	0	0	0	0	0

NOTE: Radial position adjusted for symmetry.

Table 37. Summary of Plume Measurements, J79-15, Run No. 28-1.

Run Date 4/15/74, Power Setting MIL, Axial Station 60 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °F	Total Temp (Meas) °F	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel <sub>13</sub> (x 10 <sup>-5</sup> )	CO (x 10 <sup>-5</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-85.48	5.9	0.17	0	5.8	6.6	.0007	7.1	0	11.4	12.9	13.66	13.64	565	0.02	0.01	0	0.02
1	-68.33	6.4	0.20	0	7.6	7.8	.0009	6.3	0	12.2	12.4	13.69	13.58	582	0.05	0.03	0	0.06
1	-50.62	7.4	0.27	0	10.1	10.0	.0012	5.5	0	12.4	12.3	13.83	13.61	606	0.09	0.05	0	0.11
1	-32.38	7.9	0.34	0	11.8	12.4	.0015	4.6	0	11.3	11.8	13.96	13.56	626	0.16	0.07	0	0.18
1	-14.77	8.6	0.38	0	13.5	14.2	.0017	4.6	0	11.7	12.3	14.18	13.58	643	0.22	0.10	0	0.26
1	6.66	8.6	0.38	0	13.8	14.6	.0017	4.5	0	11.8	12.5	14.21	13.58	647	0.22	0.10	0	0.26
1	23.96	7.9	0.36	0	13.0	13.9	.0016	4.4	0	11.8	12.6	14.10	13.61	639	0.19	0.08	0	0.22
1	41.13	8.1	0.30	0	10.7	12.9	.0013	5.4	0	11.8	14.2	13.96	13.61	623	0.13	0.07	0	0.15
2	59.03	7.4	0.25	0	9.9	10.1	.0011	5.8	0	12.9	13.1	13.83	13.61	604	0.08	0.05	0	0.10
1	76.61	6.1	0.17	0	7.1	8.2	.0007	7.1	0	13.5	15.7	13.72	13.66	584	0.03	0.02	0	0.04
1	93.75	5.2	0.12	0	4.9	5.6	.0004	8.7	0	13.5	15.5	13.66	13.66	562	0	0	0	0
2	-85.35	5.6	0.14	0	6.7	5.2	.0005	8.2	0	15.9	12.4	13.72	13.63	541	0.03	0.02	0	0.05
2	-68.22	6.3	0.18	0	8.2	7.7	.0007	7.0	0	14.9	14.1	13.79	13.66	539	0.05	0.04	0	0.07
2	-50.69	7.4	0.24	0	10.2	10.3	.0010	6.2	0	14.0	14.1	13.79	13.55	539	0.09	0.06	0	0.13
2	-32.88	7.9	0.28	0	11.4	12.4	.0012	5.6	0	13.2	14.4	14.03	13.55	606	0.14	0.08	0	0.18
2	-15.00	8.7	0.34	0	13.5	14.4	.0015	5.1	0	12.9	13.7	14.19	13.58	650	0.20	0.10	0	0.26
2	6.16	9.1	0.37	0	14.3	15.0	.0016	4.9	0	12.8	13.4	14.27	13.52	661	0.25	0.12	0	0.32
2	22.12	8.6	0.34	0	13.4	14.2	.0015	5.0	0	13.0	13.7	14.19	13.60	650	0.19	0.10	0	0.25
2	40.02	7.7	0.26	0	10.2	11.9	.0011	5.8	0	12.7	14.7	14.00	13.58	628	0.12	0.07	0	0.15
2	57.80	6.7	0.19	0	8.7	8.8	.0008	6.9	0	14.9	15.0	13.82	13.60	606	0.06	0.04	0	0.09
2	75.30	5.3	0.11	0	5.6	5.0	.0004	9.6	0	16.8	15.0	13.74	13.63	576	0.02	0.02	0	0.03
2	92.36	4.6	0.07	0	3.4	3.3	.0002	12.8	0	15.9	15.2	13.69	13.63	554	0.01	0.01	0	0.02

NOTE: Radial position adjusted for symmetry.

Run Date 4/15/74, Power Setting MIN A/B, Axial Station 60 ft

NOTE: Radial position adjusted for symmetry.

Run Date 4/15/74, Power Setting MID A/B, Axial Station 60 ft

NOTE: Radial position adjusted for symmetry.

Table 40. Summary of Plume Measurements, J79-15, Run No. 28-4.

Run Date 4/15/74. Power Setting MAX A/B. Axial Station 60 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2			
		CO <sub>2</sub> %	CO ppm	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>				Fuel <sup>1</sup> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-5</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> 5 (x 10 <sup>-5</sup> )
2	98.14	13.6	0.29	0	4.5	5.6	.0013	9.4	0	5.1	6.3	13.64	13.39	854	0.10	0.09	0	0.05
2	81.11	23.5	0.51	0	7.6	9.2	.0024	9.1	0	4.9	5.9	13.69	13.26	742	0.23	0.21	0	0.11
2	63.12	33.9	0.81	0	11.8	13.6	.0038	8.3	0	4.8	5.5	13.87	13.34	834	0.39	0.32	0	0.19
2	45.35	43.3	1.08	0	15.3	18.0	.0051	8.0	0	4.6	5.5	14.29	13.50	928	0.63	0.50	0	0.29
2	27.20	50.0	1.26	0	17.6	21.5	.0060	7.9	0	4.6	5.6	14.45	13.39	992	0.83	0.66	0	0.38
2	11.03	53.0	1.35	0	18.0	21.8	.0064	7.8	0	4.4	5.4	14.64	13.32	1020	0.90	0.70	0	0.40
2	-10.87	50.3	1.26	0	17.0	21.2	.0060	7.9	0	4.4	5.6	14.40	13.42	932	0.82	0.65	0	0.36
2	-28.76	45.8	1.14	0	16.0	18.5	.0054	8.0	0	4.6	5.3	14.35	13.71	718	0.87	0.54	0	0.31
2	-46.91	39.4	0.93	0	13.1	16.1	.0044	8.4	0	4.6	5.7	14.06	13.66	585	0.47	0.39	0	0.22
2	-64.65	29.8	0.67	0	9.9	10.8	.0031	8.9	0	4.9	5.3	13.85	13.55	580	0.29	0.26	0	0.14
2	-81.99	23.3	0.49	0	7.1	8.8	.0022	9.5	0	4.8	5.9	13.77	13.58	578	0.17	0.16	0	0.08
1	-90.95	24.2	0.48	0	8.9	8.6	.0022	10.0	0	6.1	5.9	13.55	13.27	726	0.18	0.18	0	0.11
1	-73.21	28.1	0.60	0	10.3	11.1	.0028	9.2	0	5.6	6.0	13.80	13.48	778	0.23	0.21	0	0.13
1	-55.16	31.5	0.71	0	11.3	13.8	.0033	8.8	0	5.3	6.4	13.80	13.32	823	0.33	0.29	0	0.17
1	-37.41	34.9	0.80	0	11.5	16.2	.0037	8.7	0	4.7	6.7	13.93	13.40	834	0.39	0.34	0	0.18
1	-19.42	41.0	0.98	0	14.8	16.3	.0046	8.3	0	5.0	5.5	14.18	13.40	905	0.56	0.46	0	0.28
1	7.53	46.7	1.16	0	16.7	19.6	.0055	8.0	0	4.8	5.6	14.50	13.74	978	0.65	0.52	0	0.31
1	21.01	47.1	1.15	0	16.5	19.2	.0055	8.1	0	4.7	5.5	14.37	13.43	963	0.72	0.58	0	0.34
1	38.49	41.0	0.98	0	14.1	16.6	.0046	8.3	0	4.8	5.6	14.34	13.77	919	0.48	0.40	0	0.23
1	56.54	32.5	0.71	0	11.0	12.5	.0033	9.1	0	5.1	5.8	13.86	13.77	816	0.21	0.19	0	0.11
1	74.27	28.7	0.60	0	9.8	11.7	.0028	9.4	0	5.3	6.4	13.74	13.51	773	0.20	0.19	0	0.11
1	91.83	23.5	0.43	0	7.5	8.3	.0020	10.9	0	5.7	6.4	13.80	13.51	726	0.16	0.17	0	0.09

NOTE: Radial position adjusted for symmetry.

Table 41. Summary of Plume Measurements, J85-5, Run No. 32-1.

Run Date 12/19/74, Power Setting MIL, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition				Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-6</sup> )	NO (x 10 <sup>-5</sup> )
1	-6.79	200	1.03	5.2	10.3	11.5	.0050	37.8	0.5	3.2	3.6	13.54	891		0.73	0.28	0.4	0.23
1	-5.72	606	3.57	13.7	28.3	44.1	.0172	33.3	0.4	2.6	4.1	29.16	1719		6.12	2.04	2.4	1.59
1	-4.29	615	3.75	12.4	31.7	49.6	.0181	32.2	0.3	2.8	4.4	29.57	1772		6.40	2.06	1.9	1.79
1	-2.87	604	3.81	8.5	33.3	52.8	.0183	31.2	0.2	2.9	4.6	29.72	1769		6.49	2.02	1.3	1.88
1	-1.82	597	3.82	7.2	34.3	53.7	.0184	30.7	0.2	3.0	4.7	29.82	1793		6.52	2.00	1.3	1.96
1	-0.51	600	3.78	7.2	33.6	54.0	.0182	31.1	0.2	3.0	4.8	29.82	1783		6.48	2.02	1.3	1.94
1	1.14	603	3.77	9.1	32.4	53.1	.0182	31.4	0.2	2.9	4.7	29.92	1779		6.49	2.04	1.3	1.88
1	2.19	612	3.73	11.7	31.3	52.2	.0180	32.3	0.3	2.8	4.7	29.97	1767		6.45	2.08	1.9	1.81
1	3.60	634	3.64	15.6	28.3	50.7	.0176	34.2	0.4	2.6	4.7	29.92	1739		6.34	2.17	2.5	1.65
1	4.67	660	3.60	18.9	26.0	48.8	.0174	36.0	0.5	2.4	4.5	29.92	1728		6.31	2.27	3.2	1.51
1	6.09	455	2.25	18.9	15.0	29.0	.0109	39.5	0.8	2.2	4.2	20.61	1307		3.11	1.23	2.5	0.68
1	6.81	209	0.93	9.1	7.4	12.4	.0045	44.1	1.0	2.6	4.3	14.94	864		0.69	0.30	0.7	0.18
2	-6.18	456	2.61	5.2	22.0	37.3	.0126	34.3	0.2	2.8	4.7	15.80	1423		1.95	0.67	0.4	0.55
2	-5.10	616	3.65	5.2	31.2	51.7	.0176	33.2	0.1	2.9	4.7	29.04	1742		6.13	2.06	0.6	1.80
2	-4.02	603	3.67	5.2	31.6	52.0	.0177	32.3	0.1	2.9	4.7	29.23	1748		6.25	2.02	0.6	1.81
2	-2.59	596	3.69	5.2	31.9	52.3	.0178	31.8	0.1	2.9	4.7	29.23	1754		6.27	1.99	0.6	1.82
2	-1.54	591	3.67	5.2	32.1	52.5	.0177	31.7	0.1	2.9	4.8	29.41	1748		6.28	1.99	0.6	1.82
2	-0.62	591	3.65	5.2	32.2	52.7	.0176	31.8	0.1	2.9	4.8	29.41	1744		6.26	1.99	0.6	1.82
2	0.88	591	3.65	6.5	31.8	52.7	.0176	31.8	0.2	2.9	4.8	29.41	1744		6.26	1.99	1.3	1.82
2	1.87	597	3.62	6.5	31.3	52.8	.0175	32.4	0.2	2.9	4.9	29.41	1736		6.23	2.02	1.2	1.81
2	3.29	613	3.60	8.5	29.8	51.5	.0174	33.4	0.2	2.8	4.8	29.23	1728		6.17	2.06	1.2	1.73
2	4.37	618	3.51	9.8	28.6	50.7	.0170	34.5	0.3	2.7	4.8	29.20	1703		6.08	2.10	1.8	1.64
2	5.45	625	3.46	11.1	27.5	50.0	.0167	35.4	0.3	2.6	4.8	29.04	1687		5.99	2.12	1.8	1.56
2	6.53	380	1.80	9.1	14.5	25.9	.0087	41.3	0.5	2.6	4.7	15.10	1155		1.24	0.51	0.6	0.32

Table 42. Summary of Plume Measurements, J85-5, Run No. 32-2.

Run Date 12/19/74, Power Setting MIN A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb Fuel	NO <sub>x</sub> lb Fuel					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-7.14	523	0.88	1148	4.0	9.3	.0049	99.7	110	1.2	2.9	14.89	13.63	855	7.98	0.76	0.84	0.09	0.22	
1	-5.72	2988	4.38	4850	7.1	39.9	.0245	115	97.7	0.5	2.6	28.91		1977	8.36	6.94	1.31	0.59	2.59	
1	-4.29	2440	5.53	870	11.9	52.2	.0277	83.0	15.7	0.7	3.1	29.61		2290	8.34	5.69	1.29	0.67	2.67	
1	-3.23	2001	5.57	859	13.7	53.3	.0276	68.2	15.5	0.8	3.2	29.16		2294	7.94	6.45	3.95	0.32	2.46	
1	-1.65	2145	4.80	2505	6.2	47.6	.0249	81.2	49.8	0.4	3.1	29.16		2087	7.84	6.78	5.86	0.24	2.35	
1	-0.41	2188	4.43	3616	5.1	44.2	.0239	86.5	74.8	0.3	3.0	29.31		1989	7.99	6.72	5.92	0.24	2.32	
1	1.31	2188	4.59	3678	5.1	44.2	.0246	84.1	74.1	0.3	2.9	29.36		2028	8.26	6.25	3.21	0.33	2.40	
1	2.71	2129	5.19	2073	6.5	46.5	.0265	75.7	38.9	0.4	2.9	29.36		2191	8.33	6.46	1.44	0.42	2.42	
1	3.78	2241	5.43	944	8.5	48.4	.0272	77.5	17.3	0.5	2.9	29.36		2266	8.31	9.56	5.15	0.25	2.08	
1	5.20	3192	4.89	3277	5.5	39.5	.0262	115	62.0	0.3	2.5	29.36		2122	4.86	5.15	7.63	0.24	1.22	
1	6.63	1805	2.70	5235	4.7	24.9	.0162	106	157	0.5	2.5	22.53		1089	2.06	2.25	3.65	0.14	0.58	
1	6.99	1241	1.56	3288	3.5	16.7	.0096	123	165	0.6	2.8	16.00		1198	8.09	10.27	5.37	0.32	2.10	
2	-6.72	1345	1.89	4264	5.2	20.6	.0117	109	177	0.7	2.8	16.00		2298	8.17	6.37	1.14	0.49	2.53	
2	-5.28	3580	4.89	3554	6.4	41.9	.0266	127	66.4	0.4	2.6	28.12		2126	8.08	6.12	2.07	0.32	2.34	
2	-4.20	2295	5.57	778	10.2	52.2	.0277	78.0	14.0	0.6	3.1	28.42		2232	7.83	6.51	4.35	0.23	2.27	
2	-2.77	2161	5.33	1382	6.8	48.5	.0268	75.8	25.6	0.4	2.9	28.54		2070	7.52	6.52	5.84	0.30	2.33	
2	-1.71	2188	4.74	2783	5.3	44.4	.0248	83.2	55.5	0.3	2.9	28.70		1934	7.79	6.83	3.77	0.23	2.34	
2	-0.53	2108	4.27	3616	5.2	43.5	.0230	86.7	77.7	0.4	3.1	28.70		2072	8.09	6.29	1.91	0.32	2.43	
2	1.36	2295	4.74	2413	4.9	46.1	.0247	87.7	48.4	0.3	3.0	28.73		2232	8.09	6.19	1.24	0.40	2.43	
2	2.41	2214	5.33	1271	6.4	49.4	.0268	77.8	23.6	0.4	3.0	28.63		2272	8.10	6.93	1.48	0.32	2.27	
2	3.84	2214	5.47	839	8.2	49.7	.0273	76.5	15.3	0.5	3.0	28.40		1935	7.81	9.53	8.67	0.23	1.87	
2	4.92	2456	5.39	994	6.5	47.1	.0271	85.5	18.3	0.4	2.8	28.54		1135	1.44	1.56	2.43	0.09	0.42	
2	6.36	3109	4.23	5406	4.8	36.5	.0242	122	111	0.3	2.4	28.35								
2	7.44	1189	1.70	3647	4.1	19.3	.0104	108	169	0.6	2.9	15.00								

Table 43. Summary of Plume Measurements, J85-5, Run No. 32-3.

Run Date 12/19/74, Power Setting MID A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio			Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	Fuel/Air Ratio	CO	HC	NO	NO <sub>x</sub>	lb/1000 lb Fuel	lb Fuel	lb Fuel				Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-8.05	1159	1.47	706	3.4	12.9	.0079	140	43.2	0.7	2.6	15.00	13.53	1053			1.13	1.58	0.49	0.08	0.29
1	-6.62	2428	6.98	470	18.6	54.1	.0341	66.7	6.9	0.9	2.6	27.39		2660			8.95	5.97	0.62	0.81	2.33
1	-4.84	978	8.63	31.9	54.9	73.5	.0406	22.4	0.4	2.2	3.0	28.20		3037			10.15	2.27	0.04	2.23	3.05
1	-3.41	1894	8.22	341	34.3	73.5	.0394	44.8	4.4	1.4	3.1	28.30		2950			10.03	4.49	0.44	1.40	3.11
1	-1.65	2608	7.14	1487	8.7	57.1	.0354	68.9	21.1	0.4	2.7	28.15		2698			9.45	6.51	1.99	0.38	2.55
1	-0.41	2955	6.64	2320	6.5	51.1	.0337	82.2	34.5	0.3	2.5	28.20		2575			9.24	7.60	3.19	0.28	2.31
1	1.31	3580	6.71	2320	6.9	53.3	.0343	97.8	33.9	0.3	2.6	28.20		2599			9.35	9.14	3.17	0.28	2.43
1	3.07	3076	8.22	588	30.0	72.6	.0401	71.5	7.4	1.2	3.0	28.45		2961			10.22	7.31	0.76	1.23	3.07
1	4.49	1669	8.99	111	56.3	76.7	.0426	36.4	1.3	2.2	3.0	28.66		3123			10.61	3.86	0.14	2.33	3.18
1	6.27	1922	7.65	156	31.5	53.4	.0367	48.8	2.1	1.4	2.4	28.45		2817			9.65	4.72	0.20	1.35	2.32
1	7.70	2188	2.33	1086	3.7	18.8	.0127	164	41.8	0.5	2.4	17.01		1359			2.48	4.07	1.04	0.12	0.60
2	-7.81	1350	1.48	588	3.4	12.8	.0079	161	35.7	0.7	2.6	14.82		1060			1.06	1.71	0.38	0.07	0.28
2	-6.36	1837	7.79	234	34.2	57.7	.0374	45.9	3.2	1.5	2.6	27.20		2849			9.38	4.31	0.30	0.14	0.24
2	-4.92	1606	8.69	38.4	53.3	73.5	.0412	36.2	0.5	2.1	3.0	27.80		3055			10.12	3.66	0.51	2.13	3.04
2	-3.12	2618	7.93	470	30.5	70.0	.0385	63.4	6.2	1.3	3.0	27.93		2890			9.80	6.21	0.61	1.27	2.94
2	-1.71	3358	6.85	1796	8.1	56.7	.0346	90.8	26.0	0.4	2.7	28.12		2634			9.34	8.48	2.43	0.37	2.52
2	-0.53	3302	6.24	3061	5.5	49.4	.0324	95.7	47.3	0.3	2.5	28.00		2476			9.02	8.63	4.27	0.27	2.26
2	1.36	2483	7.79	870	18.8	63.2	.0380	61.0	11.5	0.8	2.7	28.12		2854			9.80	5.98	1.13	0.78	2.65
2	2.76	1726	8.93	0	53.1	79.9	.0423	37.9	0	2.1	3.1	28.12		3112			10.39	3.94	0	2.18	3.22
2	4.56	1407	9.15	38.4	60.3	81.7	.0431	30.2	0.5	2.3	3.1	28.12		3156			10.51	3.17	0.05	2.42	3.26
2	6.00	1241	8.86	15.6	58.6	79.1	.0418	27.6	0.2	2.3	3.1	28.12		3092			10.30	2.84	0.02	2.37	3.19
2	7.44	3497	6.13	1000	6.0	46.0	.0310	106	16.2	0.3	2.4	26.84		2456			8.35	8.85	1.35	0.25	2.00
2	7.97	2054	2.25	1086	3.1	19.7	.0122	160	43.2	0.4	2.6	15.81		1332			1.96	3.14	0.85	0.08	5.10

Table 44. Summary of Plume Measurements, J85-5, Run No. 33-1.

Run Date 12/20/74, Power Setting MAX A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio			Emission Index					Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm	Fuel Ratio	HC	NO	lb/1000 lb Fuel	HC	NO	NO <sub>x</sub>	Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-5</sup> )	NO (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )					
1	-8.57	468	1.89	21.5	11.6	12.0	.0092	48.3	1.1	2.0	2.1	2.1	2.1	1.37	0.66	0.13	0.27	0.29					
1	-6.79	3602	11.11	4.1	67.3	78.2	.0528	62.7	0	2.1	2.5	2.5	2.5	11.29	7.08	0	2.37	2.82					
1	-5.01	9410	12.38	6.4	88.2	103	.0610	141	0.1	2.5	2.9	2.9	2.9	12.88	18.16	0.13	3.22	3.74					
1	-3.58	9757	11.75	66.3	76.4	94.8	.0584	153	0.6	2.2	2.7	2.7	2.7	12.57	19.23	0.75	2.77	3.39					
1	-1.82	6825	10.46	435	46.8	77.2	.0516	122	4.3	1.5	2.5	2.5	2.5	11.46	13.98	4.92	1.72	2.87					
1	-0.51	5737	9.82	818	29.2	66.5	.0485	109	8.6	1.0	2.3	2.3	2.3	11.05	12.05	9.50	1.11	2.54					
1	1.14	6364	9.88	874	28.4	64.9	.0491	120	9.1	1.0	2.2	2.2	2.2	11.14	13.37	10.14	1.11	2.45					
1	2.89	11735	11.3	130	59.9	85.6	.0573	189	1.2	1.8	2.5	2.5	2.5	12.54	23.70	1.50	2.26	3.14					
1	4.31	13117	12.2	28.5	82.5	102	.0621	193	0.2	2.3	2.8	2.8	2.8	13.37	25.80	0.27	3.08	3.74					
1	6.09	6929	11.9	10.5	73.4	89.7	.0580	109	0.1	2.1	2.6	2.6	2.6	12.72	13.87	0.13	2.68	3.31					
1	7.52	1927	4.62	151	13.7	30.5	.0229	79.7	3.3	1.0	2.2	2.2	2.2	4.82	3.84	1.59	0.48	1.06					
2	-8.34	991	2.84	75.0	7.9	21.1	.0140	67.2	2.6	0.9	2.4	2.4	2.4	1505	1.46	0.56	0.20	0.52					
2	-6.54	8773	11.65	13.4	60.9	83.8	.0575	140	0.1	1.8	2.5	2.5	2.5	11.86	16.60	0.19	2.13	2.97					
2	-5.10	10438	11.52	19.8	63.2	90.9	.0578	166	0.2	1.9	2.7	2.7	2.7	12.42	20.62	0.25	2.36	3.35					
2	-3.30	7150	10.37	290	37.7	76.4	.0514	128	2.9	1.2	2.5	2.5	2.5	11.40	14.59	3.31	1.37	2.85					
2	-1.88	5923	8.77	1441	12.2	60.1	.0443	124	16.5	0.5	2.3	2.3	2.3	10.37	12.86	17.11	0.52	2.39					
2	-0.62	5300	8.36	2538	7.5	53.0	.0427	116	30.1	0.3	2.1	2.1	2.1	10.07	11.68	30.31	0.30	2.11					
2	1.19	9845	10.77	305	41.6	82.5	.0544	167	2.9	1.3	2.6	2.6	2.6	11.97	19.99	3.47	1.56	3.11					
2	2.58	14527	11.75	25.0	70.9	98.2	.0606	220	0.2	2.0	2.8	2.8	2.8	12.76	28.07	0.26	2.55	3.57					
2	4.01	13401	11.95	9.3	79.9	104	.0609	201	0.1	2.2	2.9	2.9	2.9	12.75	25.63	0.13	2.81	3.70					
2	5.81	13725	11.88	7.0	77.0	102	.0608	207	0.1	2.2	2.9	2.9	2.9	12.78	26.46	0.13	2.81	3.71					
2	7.25	6105	10.58	6.4	48.7	71.7	.0516	109	0.1	1.6	2.3	2.3	2.3	11.10	12.10	0.11	1.78	2.55					
2	8.33	1808	3.68	278	5.7	24.1	.0185	92.9	7.4	0.5	2.1	2.1	2.1	3.51	3.26	2.60	0.18	0.74					

Run Date 12/18/74, Power Setting MIL, Axial Station 30 ft

Run Date 12/18/74, Power Setting MIL, Axial Station 30 ft

[illegible]

Run Date 12/18/74, Power Setting MIN A/B, Axial Station 30 ft

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Run Date 12/18/74, Power Setting MID A/B, Axial Station 30 ft

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Table 49. Summary of Plume Measurements, J79-15, Run No. 40-1.

Run Date 1/9/75, Power Setting MIL, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO lb/1000 lb Fuel	HC lb/1000 lb Fuel	NO lb/1000 lb Fuel	NO <sub>x</sub> lb/1000 lb Fuel					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-5</sup> )	HC (x 10 <sup>-6</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-13.29	21.0	0.76	2.9	24.9	24.9	.0036	5.5	0.4	10.7	10.7	1438	13.56	809		0.46	0.25	0.2	0.49
1	-11.11	40.2	2.15	2.4	55.1	72.7	.0102	3.7	0.1	10.1	11.3	21.00		1263		3.05	1.13	0.3	3.08
1	-8.93	56.4	3.28	1.2	111	119	.0156	3.4	0	11.4	12.3	33.50		1620		6.44	2.19	0	7.34
1	-4.56	59.3	3.23	1.2	103	113	.0154	3.7	0	10.8	11.8	34.50		1607		6.54	2.42	0	7.06
1	-2.38	60.1	3.14	2.9	98.5	109	.0150	3.8	0.1	10.6	11.7	34.60		1578		6.44	2.45	0.6	6.82
1	-0.41	61.2	3.11	1.2	96.3	106	.0148	3.9	0	10.4	11.5	34.60		1568		6.39	2.49	0	6.65
1	2.06	60.9	3.11	0.6	95.4	106	.0148	3.9	0	10.3	11.5	34.70		1568		6.40	2.50	0	6.59
1	4.24	62.3	3.24	2.4	103	114	.0154	3.8	0.1	10.8	11.9	34.50		1608		6.55	2.49	0.7	7.07
1	6.42	63.1	3.30	0.6	105	117	.0157	3.8	0	10.7	12.0	34.25		1628		6.59	2.50	0	7.05
1	8.60	62.0	3.14	0	100	112	.0150	3.9	0	10.4	12.0	33.80		1578		6.32	2.46	0	6.83
1	13.33	30.8	1.08	1.2	33.1	36.2	.0051	5.7	0.1	10.1	11.1	15.50		896		0.94	0.54	0.1	0.95
2	-12.29	34.4	1.28	1.2	41.7	43.4	.0061	5.3	0.1	10.7	11.1	15.00		963		0.95	0.50	0.1	1.02
2	-10.45	53.3	2.68	0.6	86.6	95.6	.0127	4.0	0	10.9	12.0	25.10		1433		4.36	1.74	0	4.75
2	-8.23	61.7	3.31	0.6	108	119	.0158	3.7	0	10.9	12.1	34.00		1631		6.57	2.43	0	7.16
2	-6.38	64.2	3.31	1.8	105	117	.0158	3.9	0.1	10.7	12.0	34.50		1631		6.65	2.59	0.7	7.12
2	-4.18	66.0	3.18	11.2	97.8	112	.0152	4.1	0.4	10.3	11.8	34.50		1594		6.49	2.66	2.6	6.68
2	-2.37	64.8	3.12	4.1	97.6	110	.0148	4.1	0.1	10.5	11.9	34.80		1571		6.44	2.64	0.6	6.76
2	-0.84	63.4	3.04	0.6	96.0	107	.0145	4.2	0	10.6	11.8	35.00		1547		6.36	2.67	0	6.74
2	1.99	62.8	3.01	4.1	94.9	106	.0143	4.2	0.1	10.6	11.8	35.00		1536		6.31	2.65	0.6	6.69
2	3.78	62.6	3.04	1.2	96.9	109	.0145	4.1	0	10.7	12.0	35.00		1547		6.36	2.61	0	6.81
2	5.98	64.2	3.14	0	105	117	.0150	4.1	0	11.3	12.6	34.80		1578		6.47	2.65	0	7.31
2	7.82	65.6	3.17	0	102	115	.0151	4.1	0	10.8	12.2	34.20		1588		6.42	2.63	0	6.93
2	10.41	56.8	2.65	0.6	87.9	98.2	.0126	4.3	0	11.1	12.4	28.00		1424		4.80	2.06	0	5.33
2	12.63	36.3	1.25	1.2	41.3	45.1	.0059	5.8	0.1	10.8	12.0	16.00		947		1.19	0.69	0.1	1.30

Table 50. Summary of Plume Measurements, J79-15, Run No. 40-2.

Run Date 1/9/75, Power Setting MIN A B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index			Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in.²				
		CO ppm	CO₂ %	HC ppm	NO ppm	NOx ppm		CO	HC	NO					Fuel (x 10⁻³)	CO (x 10⁻⁴)	HC (x 10⁻⁴)	NO (x 10⁻⁵)	NOx (x 10⁻⁵)
1	-14.01	134	0.87	66.4	23.9	26.8	.0042	30.2	7.6	8.9	10.0	14.90	839		0.66	0.20	0.05	0.59	0.66
1	-11.47	388	2.71	292	62.9	82.5	.0132	25.8	10.8	7.6	10.0	24.70	1448		4.42	1.14	0.48	3.36	4.42
1	-8.93	878	4.66	792	73.8	120	.0228	36.3	17.1	5.2	8.5	33.30	2030		8.26	3.00	1.41	4.30	7.02
1	-6.01	1190	8.46	233	97.6	133	.0401	27.6	2.9	4.0	5.5	33.40	2991		11.62	3.21	0.34	4.65	6.39
1	-3.47	2563	8.51	1387	55.8	116	.0415	57.4	16.9	2.2	4.6	33.00	3011		11.85	6.80	2.00	2.61	5.45
1	-0.97	3660	6.36	6411	15.6	86.6	.0348	98.6	92.1	0.7	4.1	32.40	2494		10.88	10.73	10.02	0.76	4.46
1	1.71	3433	7.00	4457	21.5	91.6	.0366	87.7	61.1	1.0	4.1	32.80	2654		11.17	9.80	6.82	1.12	4.56
1	4.24	1113	9.04	396	91.0	124	.0427	24.2	4.7	3.5	4.8	33.50	3122		12.10	2.93	0.57	4.24	5.81
1	7.15	807	6.15	272	83.7	123	.0295	25.7	4.6	4.7	6.8	33.60	2430		9.69	2.49	0.45	4.55	6.59
1	9.70	584	3.95	402	71.2	114	.0192	28.8	10.3	6.0	9.6	33.00	1825		7.33	2.11	0.75	4.40	7.04
1	12.24	434	2.90	277	55.8	84.4	.0141	29.2	9.6	6.3	9.6	25.20	1507		4.71	1.38	0.45	2.97	4.52
1	14.78	189	1.10	101	24.6	34.9	.0053	33.4	9.0	7.2	10.2	15.50	904		0.98	0.33	0.09	0.71	1.00
2	-14.88	194	0.85	71.7	17.5	25.3	.0041	44.0	8.2	6.6	9.5	14.10	836		0.42	0.18	0.03	0.28	0.40
2	-12.29	701	3.35	390	52.5	92.1	.0164	40.5	11.6	5.1	9.0	24.00	1649		4.96	2.01	0.58	2.53	4.46
2	-9.34	1056	5.84	503	71.2	120	.0282	35.2	8.9	4.1	6.9	33.10	2350		9.35	3.29	0.83	3.83	6.45
2	-6.75	812	8.68	74.7	108	135	.0408	18.5	0.9	4.4	5.5	33.10	3039		11.64	2.15	0.10	5.12	6.40
2	-3.81	1932	8.54	1018	61.8	114	.0412	43.6	12.5	2.5	4.6	32.80	3016		11.70	5.10	1.46	2.93	5.38
2	-1.36	3384	6.72	4666	16.7	85.9	.0354	89.4	66.0	0.8	4.0	32.30	2585		10.84	9.69	7.15	0.87	4.34
2	1.65	3688	6.86	939	15.8	85.9	.0344	101	13.7	0.8	4.1	32.30	2634		10.43	10.53	1.43	0.83	4.28
2	4.51	1775	8.45	843	59.8	106	.0406	40.6	10.5	2.4	4.3	33.00	2994		11.65	4.72	1.22	2.80	5.01
2	7.09	848	7.19	145	85.5	119	.0342	23.2	2.1	4.1	5.7	33.40	2690		10.55	2.45	0.22	4.33	6.01
2	10.04	680	4.17	342	64.6	111	.0203	31.8	8.3	5.2	8.8	33.40	1891		7.65	2.43	0.63	3.98	6.73
2	12.63	348	2.25	163	40.0	63.8	.0109	30.3	7.2	5.8	9.3	19.50	1298		2.88	0.87	0.21	1.67	2.68
2	14.11	214	1.22	81.1	23.9	36.6	.0059	34.2	6.6	6.3	9.7	15.00	940		0.92	0.31	0.06	0.58	0.89

Table 51. Summary of Plume Measurements, J79-15, Run No. 40-3.

Run Date 1/9/75, Power Setting MID A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. 2				
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-4</sup> )	NO <sub>4</sub> (x 10 <sup>-5</sup> )	NO <sub>5</sub> (x 10 <sup>-5</sup> )
1	-15.10	404	0.82	3134	5.6	21.4	.0056	68.3	267	1.6	6.0	14.70	13.55	831		0.83	0.57	2.22	0.13	0.50
1	-12.20	1411	2.65	9268	7.8	54.6	.0178	75.3	254	0.7	4.9	23.00		1433		5.52	4.16	14.02	0.39	2.70
1	-9.29	3219	5.71	7762	18.2	92.1	.0322	93.8	120	0.9	4.7	32.80		2323		10.61	9.95	12.73	0.95	4.99
1	-6.74	3883	10.24	769	119	158	.0495	72.4	7.9	4.0	5.3	33.00		3409		13.14	9.51	1.04	5.26	6.96
1	-3.83	3219	10.23	532	115	155	.0490	60.6	5.5	3.9	5.3	32.60		3400		12.91	7.82	0.71	5.03	6.84
1	-0.97	4921	7.07	4129	22.4	98.7	.0374	120	55.4	1.0	4.3	31.50		2689		10.97	13.16	6.08	1.10	4.72
1	2.06	4221	8.02	2328	38.2	113	.0405	97.0	29.0	1.6	4.6	32.00		2913		11.50	11.16	3.34	1.84	5.29
1	4.96	2011	10.52	216	125	155	.0496	37.4	2.2	4.2	5.2	33.00		3454		13.07	4.89	0.29	5.49	6.80
1	7.31	2990	8.68	730	83.5	142	.0421	65.9	8.8	3.3	5.6	33.00		3059		11.93	7.86	1.05	3.94	6.68
1	10.42	3219	5.23	6099	14.5	87.7	.0292	104	104	0.8	4.9	32.90		2201		9.95	10.35	10.35	0.80	4.88
1	13.33	1723	2.98	5684	8.7	58.7	.0178	92.1	137	0.8	5.3	23.00		1544		5.30	4.88	8.32	0.42	2.81
1	16.23	459	0.86	1844	5.6	20.3	.0052	83.8	170	1.7	6.1	14.50		843		0.69	0.58	1.17	0.12	0.42
2	-14.88	731	1.47	1575	6.2	33.2	.0081	85.7	93.7	1.2	6.5	14.80		1040		1.12	0.96	1.05	0.13	0.73
2	-12.29	2323	5.90	2328	33.6	101	.0300	72.7	38.6	1.8	5.5	30.40		2376		9.19	6.68	3.55	1.65	5.05
2	-9.34	2757	8.92	458	92.3	144	.0430	59.6	5.4	3.6	5.6	32.50		3112		11.90	7.09	0.64	4.28	6.66
2	-6.75	3705	11.27	27.6	153	184	.0535	63.6	0.3	4.8	5.8	32.20		3622		13.44	8.55	0.04	6.45	7.80
2	-3.81	2892	9.53	532	89.7	139	.0458	58.5	5.9	3.3	5.1	32.00		3248		12.21	7.14	0.72	4.03	6.23
2	-1.36	4391	7.56	2919	24.8	102	.0388	106	37.8	1.1	4.3	31.60		2805		11.15	11.82	4.22	1.23	4.79
2	1.65	4505	8.11	2113	37.1	111	.0410	102	26.0	1.5	4.5	31.60		2937		11.45	11.68	2.98	1.72	5.15
2	4.51	2660	9.93	317	93.6	136	.0473	51.9	3.4	3.3	4.8	31.50		3333		12.27	6.37	0.42	4.05	3.89
2	7.09	2222	10.12	56.5	121	155	.0479	42.9	0.6	4.2	5.4	32.50		3372		12.64	5.42	0.08	5.31	6.83
2	10.04	3110	6.46	2919	26.6	103	.0332	87.7	43.9	1.3	5.1	32.40		2525		10.35	9.08	4.54	1.35	5.28
2	12.63	2116	4.08	3403	12.3	77.8	.0220	90.9	76.2	0.9	5.7	24.50		1877		6.32	5.74	4.82	0.57	3.60
2	15.21	721	1.48	1602	4.8	30.1	.0082	83.8	94.5	0.9	5.8	15.00		1044		1.21	1.01	1.14	0.11	0.70

Table 52. Summary of Plume Measurements, J79-15, Run No. 41-1.

Run Date 1/10/75, Power Setting MAX A/B, Axial Station 0 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel <sub>3</sub> (x 10 <sup>-3</sup> )	CO (x 10 <sup>-4</sup> )	HC (x 10 <sup>-5</sup> )	NO <sub>x</sub> (x 10 <sup>-5</sup> )
1	-16.55	726	1.77	21.9	21.4	28.3	.0088	78.5	1.2	3.9	5.1	14.50	13.35	1144		1.01	0.79	0.12	0.39
1	-13.45	2123	6.59	10.1	72.1	92.7	.0319	62.4	0.2	3.7	4.8	23.00		2549		7.22	4.51	0.14	2.67
1	-10.55	3919	11.15	2.4	135	161	.0531	67.8	0	4.3	5.1	32.00		3594		13.31	9.02	0	5.72
1	-7.28	7916	11.88	1.8	152	178	.0581	125	0	4.4	5.2	32.50		3771		14.29	17.86	0	6.29
1	-4.37	4116	10.42	264	111	150	.0501	75.7	2.7	3.7	5.0	32.10		3442		12.91	9.77	3.49	4.78
1	-1.13	5355	6.69	51.58	19.9	94.4	.0364	138	71.1	0.9	4.3	30.50		2589		10.61	14.64	75.44	0.95
1	2.24	4099	8.58	1745	50.5	117	.0427	89.1	20.7	5.0	4.6	31.50		3037		11.66	10.39	24.14	2.33
1	5.14	4200	11.25	80.0	133	159	.0537	71.8	0.8	4.2	5.0	32.70		3616		13.64	9.79	1.09	5.36
1	8.42	3919	11.21	33.2	137	160	.0534	67.4	0.3	4.3	5.0	32.80		3606		13.62	9.18	40.86	5.86
1	11.51	1938	10.02	31.4	114	135	.0472	37.9	0.3	4.0	4.8	32.10		3340		12.41	4.70	0.37	4.96
1	14.78	1729	3.79	488	23.8	57.0	.0190	86.0	12.6	2.0	4.8	17.80		1791		3.59	3.09	4.52	0.72
1	16.59	751	1.34	340	9.5	24.0	.0069	104	23.9	2.2	5.5	14.30		986		0.75	0.78	1.79	0.17
2	-15.89	1134	3.23	41.5	33.5	55.1	.0159	67.7	1.3	3.4	5.6	15.10		1616		1.94	1.31	0.25	0.66
2	-13.06	4657	10.81	9.5	123	154	.0520	82.5	0.1	4.0	5.0	31.20		3529		12.89	10.63	0.13	5.16
2	-10.06	5326	11.36	4.7	139	167	.0555	88.0	0	4.2	5.1	31.80		3686		13.62	11.99	0	5.72
2	-7.23	4285	11.51	7.1	144	174	.0549	71.7	0.1	4.4	5.3	31.80		3659		13.50	9.68	0.14	5.94
2	-4.24	3253	9.61	544	83.6	133	.0463	65.0	6.0	3.0	4.8	31.20		3263		12.04	7.83	7.22	3.61
2	-1.37	5179	7.45	3679	18.4	95.5	.0391	124	47.5	0.8	4.0	30.40		2778		10.90	13.52	51.78	0.87
2	2.02	5237	7.88	3195	21.2	96.6	.0408	120	39.6	0.9	3.9	30.40		2882		11.14	13.37	44.11	1.00
2	4.95	3391	10.08	318	91.0	133	.0483	64.8	3.4	3.2	4.6	31.50		3365		12.44	8.06	4.23	3.98
2	7.95	4513	11.48	14.2	131	161	.0548	75.5	0.1	4.0	4.9	32.00		3665		13.57	10.25	0.14	5.43
2	10.95	4371	11.47	7.7	132	160	.0547	73.3	0.1	4.1	4.9	32.00		3661		13.55	9.93	0.14	5.36
2	13.96	1886	6.63	27.9	64.1	93.6	.0320	55.2	0.4	3.3	4.8	21.50		2558		6.67	3.68	0.27	2.20
2	15.83	1314	3.02	169	19.7	46.8	.0151	82.7	5.5	2.1	5.0	15.50		1356		2.10	1.74	1.16	0.44

Table 53. Summary of Plume Measurements, J79-15, Run No. 43-1.

Run Date 1/14/75, Power Setting MIL, Axial Station 60 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>				NO <sub>x</sub> (x 10 <sup>-3</sup> )
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>				Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-3</sup> )	HC (x 10 <sup>-3</sup> )	NO (x 10 <sup>-3</sup> )	
1	143.90	4.9	0.06	2.9	3.0	2.6	.0002	15.1	4.6	15.4	13.5	13.70							
1	-96.46	5.5	0.07	3.0	3.6	3.6	.0002	15.1	4.1	16.3	15.9	13.70							
1	-77.83	6.2	0.10	2.7	5.0	5.0	.0004	11.8	2.6	15.6	15.6	13.80							
1	-58.65	7.6	0.16	2.7	6.7	6.7	.0006	9.4	1.7	13.8	13.6	13.90							
1	-39.34	8.6	0.21	3.0	9.0	9.4	.0010	8.1	2.4	14.0	14.6	13.80							
1	-19.59	9.6	0.26	2.8	11.9	11.9	.0011	7.3	1.1	14.8	14.8	14.00							
1	0.38	10.1	0.30	2.6	13.2	13.0	.0013	6.6	0.9	14.3	14.1	14.40							
1	20.35	10.1	0.31	2.5	13.2	13.7	.0014	6.5	0.8	14.0	14.5	14.20							
1	40.17	9.6	0.28	2.5	12.3	12.3	.0012	6.7	0.9	14.2	14.2	14.00							
1	59.44	8.6	0.23	2.6	9.4	10.5	.0010	7.6	1.1	13.6	15.2	13.90							
1	78.58	8.1	0.17	2.6	8.2	7.8	.0007	9.5	1.5	15.8	15.0	13.80							
1	97.18	6.7	0.11	2.5	5.5	5.7	.0004	12.1	2.2	16.2	16.7	13.70							
1	110.31	6.7	0.10	2.5	4.2	4.6	.0003	13.6	2.5	14.0	15.2	13.70							
1	143.67	4.5	0.06	2.8	2.3	3.5	.0001	15.4	4.8	12.8	19.4	13.70							

Run Date 1/14/75, Power Setting MIN A/B, Axial Station 60 ft

[illegible]

**Table 55. Summary of Plume Measurements, J79-15, Run No. 43-3.**

Run Date 1/14/75, Power Setting MID A/B, Axial Station 60 ft

[illegible]

Table 56. Summary of Plume Measurements, J79-15, Run No. 43-4.

Run Date 1/14/75, Power Setting MAX A/B, Axial Station 60 ft

Probe No.	Radial Position in.	Measured Gas Composition					Fuel/Air Ratio	Emission Index				Total Press psia	Static Press psia	Total Temp (Calc) °R	Total Temp (Meas) °R	Flow Rate, lb/sec-in. <sup>2</sup>			
		CO ppm	CO <sub>2</sub> %	HC ppm	NO ppm	NO <sub>x</sub> ppm		CO	HC	NO	NO <sub>x</sub>					Fuel (x 10 <sup>-3</sup> )	CO (x 10 <sup>-3</sup> )	HC (x 10 <sup>-3</sup> )	NO (x 10 <sup>-3</sup> )
1	143.67	13.4	0.18	5.7	3.6	3.6	.0007	15.1	3.3	6.8	6.8	13.50							
1	92.46	24.2	0.41	4.8	7.3	7.3	.0019	11.7	1.2	5.8	5.8	13.50							
1	78.58	26.7	0.54	4.6	8.9	10.5	.0025	9.9	0.9	5.5	6.4	13.80							
1	59.44	34.7	0.78	4.6	12.1	13.7	.0037	8.8	0.6	5.1	5.7	14.00							
1	40.17	41.4	1.02	4.5	14.6	16.9	.0048	8.1	0.4	4.7	5.5	14.10							
1	20.35	44.4	1.17	4.6	16.0	18.9	.0055	7.6	0.4	4.5	5.3	14.70							
1	0.38	42.5	1.15	4.6	16.0	19.0	.0054	7.4	0.4	4.6	5.5	14.80							
1	-19.59	37.7	0.89	4.6	12.8	15.2	.0042	8.4	0.5	4.7	5.6	14.20							
1	-39.43	32.2	0.67	4.8	10.5	12.7	.0031	9.6	0.7	5.2	6.2	14.00							
1	-58.71	24.6	0.46	4.7	7.8	9.3	.0021	10.6	1.0	5.5	6.6	13.80							
1	-77.87	17.9	0.29	5.0	5.5	6.4	.0013	12.1	1.7	6.1	7.1	13.80							
1	-91.50	16.8	0.28	4.8	5.0	6.8	.0012	11.8	1.7	5.8	7.9	13.80							
1	143.67	12.7	0.16	5.3	3.6	3.6	.0006	15.6	3.3	7.4	7.4	13.50							